Section 1	Chemical Product and Company Information	Page E1 of E2
Scie	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product ACE	TIC ACID, GLACIAL	
Synonyms Etha	noic Acid / Methanecarboxylic Acid / Glacial Acetic Acid	
Section 2	Hazards Identification	
Signal word: DAN Pictograms: GHS Target organs: Re Construction Flammable liquid (C Skin corrosion (Cate GHS Label inform H226: Flammable li H314: Causes seven	IGER 102 / GHS05 aspiratory system, Eyes, Skin, Teeth	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233: Keep container tightly closed. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P370+P378: In case of fire: Use dry chemical, alcohol foam, carbon dioxide or water spray to extinguish. P403+P235: Store in a well-ventilated place. Keep cool. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients								
Chemical Name		CAS #	%	EINECS					
Acetic acid		64-19-7	99.8%	200-580-7					
Section 4	First Aid Measures		1	1					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE CORNEAL BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION AND/OR BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This chemical reacts violently with strong oxidizers, generating a fire and explosion hazard. Reacts violently with strong bases, strong acids and many other compounds.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Pro	tection		
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Limits.	Acetic acid	TWA: 25 mg/m ³ STEL: 37 mg/m ³	TWA: 25 mg/m ³	TWA: 25 mg/m ³ STEL: 37 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHA-

approved respirator.											
Section 9	Physical & Chemical Prop	erties									
Appearance: Clear, Odor: Strong, acrid, Odor threshold: Da pH: <2 Melting / Freezing p Boiling point: 118.1 Flash point: 39°C (colorless liquid. vinegar-like odor. ta not available. oint: 16.7°C (62°F) °C (244°F) 102.2°F) TCC ASTM D 56	Evaporation r Flammability Explosion lim Vapor pressur Vapor density Relative dens Solubility(ies)	Evaporation rate (Butyl acetate = 1): 0.97 Partition coefficient: Flammability (solid/gas): Data not available. Auto-ignition temper Explosion limits: Lower / Upper: 4.0% / 19.9% Decomposition temper Vapor pressure (mm Hg): 11.4 @ 20°C Viscosity: Data not available. Vapor density (Air = 1): 2.07 Molecular formula: Relative density (Specific gravity): 1.049 @ 20/4°C Molecular weight: 6				not available 464°C (869°F) e: Data not available. e. OH				
Section 10	Section 10 Stability & Reactivity										
Chemical stability: Conditions to avoid	Stable I: Excessive temperatures, heat	Hazardo , sparks, open fl	ous polymerization: V ame and other sources	Vill not occur. of ignition.							
Incompatible mater reaction with acetald	ials: Bases, strong oxidizers, cl ehyde and acetic anhydride. Igr	nromic acid, nitri nites on contact	c acid, sodium peroxide with potassium-tert-botc	, carbonates, hydro oxide.	xides, phosph	ates. Corrosive to	some metals. Potentially violent				
Hazardous decomp	osition products: Carbon mor	oxide, hydrogen	sulfide and other harm	ful gases or vapors	including oxid	es and/or other co	mpounds of sulfur and sodium.				
Section 11	Toxicological Information										
Skin corrosion/irrit Serious eye damag Respiratory or skin Germ cell mutagen Carcinogenity: Dat NTP: No componen IARC: No componen OSHA: No componen Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Exposure shortness of breath, Ingestion: May caus faintness, weakness Skin: Contact with s Eyes: Contact with s	Acute toxicity: Oral-rat LD50: 3,310 mg/kg ; Inhalation-rat LC50: 11.4 mg/L/4 hours ; Dermal-rabbit LD50: 1,060 mg/kg Skin corrosion/irritation: Skin-rabbit - Severe irritant. Serious eye damage/irritation: Eyes-rabbit - Severe irritant. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Exposure to vapor may cause irritation of the eyes, nose, and respiratory tract. May cause asthma-like symptoms, including coughing, wheezing, tightness of chest, shortness of breath, and headache. Ingestion: May cause burns of the mouth, throat, esophagus, and stomach. Signs and symptoms may include pain, nausea, vomiting, diarrhea, dizziness, drowsiness, faintness, weakness, collapse and coma. Skin: Contact with skin causes pain, redness, burns, and blisters. Eyes: Contact with eyes may cause redness, pain, corneal burns, and loss of vision.										
Section 12	Ecological Information										
Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 251 mg/L/24 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 95 mg/L/24 hours Toxicity to algae: Euglena gracilis (Algae), EC100 = 720 mg/L Persistence and degradability: Easily biodegradable Bioaccumulative potential: Not expected to bioaccumulate Mobility in soil: No data available PBT and VPVB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.											
Section 13	Disposal Considerations										
These disposal gui regulations may be	delines are intended for the or different. Dispose of in according to the different.	lisposal of cata ordance with al	alog-size quantities or Il local, state and fede	nly. Federal regulations or	ations may a contract with	pply to empty co a licensed chen	ntainer. State and/or local nical disposal agency.				
Section 14	Transport Information (US	S DOT / CANA	DA TDG)								
UN/NA number: Hazard class: 8	UN2789 Shipping	name: Acetic roup: II	acid, glacial	le Quantity: 50	00 lbs (227))ka) Mar	ine pollutant: No				
Exceptions: Lim	ited quantity equal to or less	than 1 L	2012 ER(Guide # 132	55 105 (221)						
Section 15	Regulatory Information										
A chemical is considere	d to be listed if the CAS number for t	he anhydrous form	n is on the Inventory list.								
Compone	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification				
Acetic acid, glacial		Listed	5,000 lbs (2270 kg)	D001, D002	Listed	Not listed	@ € ^{3; E}				
Section 16	Additional Information										

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua NH 03063 Not for drug, food or household use. (800) 225-3739 ACETAMIDE Product Synonyms Acetic Acid Amide / Ethanamide Section 2 **Hazards Identification** Signal word: WARNING Precautionary statement: Pictograms: GHS086 P201: Obtain special instructions before use. Target organs: None known P202: Do not handle until all safety precautions have been read and understood. P280: Wear protective gloves/protective clothing/eye protection/face protection. P308+P313: IF exposed or concerned: Get medical attention. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. GHS Classification: Carcinogenicity (Category 2) GHS Label information: Hazard statement: H351: Suspected of causing cancer.

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity.

Section 3 C	Composition / Information on Ingredients								
Chemical Name		CAS #	%	EINECS					
Acetamide		60-35-5	95-100%	200-473-5					
Section 4 F	irst Aid Measures								

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CONTACT CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

ERG: Emergency Response Guidebook.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection								
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)					
Exposure Limits:	Acetamide	Not established	Not established	Not established					

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	perties					
Appearance: Solid Odor: Slight odor Odor threshold: D pH: Data not availa Melting / Freezing Boiling point: 221 Flash point: Data	I. White crystals lata not available lble point: 81°C (178°F) .2°C (432°F) not available	Evaporation r Flammability Explosion lim Vapor pressur Vapor density Relative dens Solubility(ies)	ate (= 1): Data not av (solid/gas): Data not av its: Lower / Upper: D re (mm Hg): Data not av (Air = 1): Data not ava ity (Specific gravity): ' : Soluble in water	vailable vailable ata not available available ailable I. 159 @ 68°F	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: (n-octa ion temperature: sition temperature Data not available formula: CH ₃ COI weight: 59.07	anol / water): Log Pow: 1.26 Data not available 2: Data not available 3: NH ₂
Section 10	Stability & Reactivity						
Chemical stability Conditions to avo	: Stable id: Excessive temperatures.	Hazard	ous polymerization: V	Vill not occur.			
Incompatible mate	erials: Strong acids and oxidizer	S.					
Hazardous decom	position products: Carbon oxid	des, nitrogen oxid	des and dense smoke.				
Section 11	Toxicological Information						
Section 11 Toxicological Information Acute toxicity: Oral-rat LD50: 7000 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available TP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC classified: Group 2B: Possibly carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: May be harmful by inhalation. Ingestion: May cause gastrointestinal irritation with nausea and vomiting. Skin: Contact with skin may cause irritation. Eyes: Contact with eyes may cause moderate irritation. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: AB4025000							
Toxicity to fish: N Toxicity to daphni Toxicity to algae: I Persistence and d Mobility in soil: N Other adverse effe	o data available a and other aquatic invertebrat No data available egradability: No data available o data available ects: An environmental hazard c	es: No data avai Bioaccum PBT and v annot be exclude	lable Iulative potential: No (/PvB assessment: No ed in the event of unprof	data available data available iessional handling or	r disposal.		
Section 13	Disposal Considerations						
These disposal gr regulations may b	uidelines are intended for the be different. Dispose of in acc	disposal of cata ordance with a	alog-size quantities or Il local, state and fede	nly. Federal regulations or	ations may a contract with	pply to empty co a licensed chen	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (U	S DOT / CANA	DA TDG)				
UN/NA number: Hazard class: N Exceptions: No	Not applicableShiplot applicablePackot applicable2012	ping name: 1 king group: N ERG Guide #	Not Regulated lot applicable Not applicable	Reportable Qua	Intity: 100	bs (45.4 kg)	Marine pollutant: No
Section 15	Regulatory Information						
A chemical is consider	ed to be listed if the CAS number for	the anhydrous forn	n is on the Inventory list.	BCBA code	Dei	NDSI	WHMIS Classification
Acetamide		Listed	100 lbs (45.4 kg)	Not listed	Listed	Not listed	
Section 16	Additional Information						
The information conta	ined herein is furnished without warra	nty of any kind. Er	nployers should use this in rces to assure proper use	formation only as a su	pplement to oth	er information gather	ed by them and must make indepen-

IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure,

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	ACETONE	
Synonyms	2-Propanone / Dimethyl Ketone / Solvent	
Section 2	Hazards Identification	
Signal word: Pictograms: Target organ: GHS Classifid Flammable liq Eye irritation (STOT-SE (Ca GHS Label in H225: Highly 1 H319: Causes H336: May ca Supplementa Repeated exp	DANGER GHS02 / GHS07 is: Central nervous system	Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233: Keep container tightly closed. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P261: Avoid breathing mist/vapours/spray. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P370+P378: In case of fire: Use dry chemical, alcohol foam, carbon dioxide or water spray to extinguish. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P403+P235: Store locked up. Keep cool. P501: Dispose of contents/container to a licensed chemical disposal agency in

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Acetone		67-64-1	100%	200-662-2				
Continu 4	First Aid Massures							
Section 4	First Ald Measures							

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: REPEATED OR PROLONGED CONTACT MAY CAUSE DRYING AND DEFATTING OF SKIN. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Acetone is extremely flammable and its vapors form explosive mixtures with air. Dangerous when exposed to heat, sparks, flame or oxidizing agents.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Pro	tection		
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linits.	Acetone	TWA: 500 ppm; STEL: 750 ppm	TWA: 1000 ppm / 2400 mg/m ³	TWA: 250 ppm / 590 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Pro	perties	
Appearance: Clear, colorless liquid. Odor: Pungent odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: Approximately 95°C (139°F) Boiling point: 56°C (133°F) Flash point: -20°C (-4°F) CC	Evaporation rate (Butyl acetate = 1): 7.7 Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: 2.5% / 12.8% Vapor pressure (mm Hg): 180 Vapor density (Air = 1): 2.00 Relative density (Specific gravity): 0.8 Solubility(ies): Soluble in water.	Partition coefficient: (n-octanol / water): Log Pow:24 Auto-ignition temperature: 465°C (869°F) Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: CH ₃ COCH ₃ Molecular weight: 58.08

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition.

Incompatible materials: Chloroform, chromic anhydride, hydrogen peroxide, nitric compounds, acids, strong oxidizers, alkalies.

Hazardous decomposition products: Oxides of carbon.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 5,800 mg/kg ; Inhalation-rat LC50: 76 mg/L/4 hours

Skin corrosion/irritation: Skin-rabbit - Slight irritant.

Serious eye damage/irritation: Eyes-rabbit - Severe irritant.

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause cough, sore throat, confusion, headache, dizziness, drowsiness, unconsciousness.

Ingestion: Ingestion causes nausea, vomiting, and other symptoms same as inhalation.

Skin: Contact with skin causes irritation, dry and/or defatting on prolonged contact.

Eyes: Contact with eyes causes redness, pain and blurred vision.

Signs and symptoms of exposure: See Potential health effects above. Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: AL3150000

Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 13,000 mg/L/48 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia cucullata (Crustacea), EC50 = ca. 7,635 mg/L/48 hours Toxicity to algae: Anabaena inaequalis (Algae), EC50 = 21,725 mg/L/14 days Persistence and degradability: No data available Mobility in soil: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG) UN/NA number: UN1090 Shipping name: Acetone Hazard class: 3 Packing group: II Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 127 Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed Q TO S B2; D2B	Section 12	Ecological Information							
Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG) UN/NA number: UN1090 Shipping name: Acetone Hazard class: 3 Packing group: II Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 127 Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. MMHMIS Classification Acetone Listed 5,000 lbs (2270 kg) UD02 Listed Not listed @ O	oxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 13,000 mg/L/48 hours oxicity to daphnia and other aquatic invertebrates: Daphnia cucullata (Crustacea), EC50 = ca. 7,635 mg/L/48 hours oxicity to algae: Anabaena inaequalis (Algae), EC50 = 21,725 mg/L/14 days ersistence and degradability: No data available lobility in soil: No data available PBT and vPvB assessment: No data available ther adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG) UN/NA number: UN1090 Shipping name: Acetone Hazard class: 3 Packing group: II Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 127 Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed @ ① DS:	Section 13	Disposal Considerations							
Section 14 Transport Information (US DOT / CANADA TDG) UN/NA number: UN1090 Shipping name: Acetone Hazard class: 3 Packing group: II Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 127 Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Kethemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed Image: Distance in the inventory list.	These disposal guic regulations may be	Fhese disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local equilations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
UN/NA number: UN1090 Shipping name: Acetone Hazard class: 3 Packing group: II Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 127 Section 15 Marine pollutant: No Section 15 Regulatory Information Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed D: D	Section 14	Transport Information (US D	OT / CANAD	A TDG)					
Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed Image: Component of the co	UN/NA number: U Hazard class: 3 Exceptions: Limit	JN1090 Shipping nar Packing grou ted quantity equal to or less that	ne: Acetone ip: II an 1 L	e Reportab 2012 ERG	le Quantity: 5,0 Guide # 127	000 lbs (2270) kg) Mari	ne pollutant: No	
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed Isted B2; D2B	Section 15	Regulatory Information							
ComponentTSCACERLCA (RQ)RCRA codeDSLNDSLWHMIS ClassificationAcetoneListed5,000 lbs (2270 kg)U002ListedNot listedImage: B2; D2BAcetoneListedSouther (Listed Listed Liste	A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.								
Acetone Listed 5,000 lbs (2270 kg) U002 Listed Not listed O O B2; D2B	Componer	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
	Acetone		Listed	5,000 lbs (2270 kg)	U002	Listed	Not listed	• • • • • • • • • • • • • • • • • • •	

Section 16 Additional Information

SDS No.: AA0075

Section 1 **Chemical Product and Company Information CHEMTREC 24 Hour Emergency** Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 scientific AGAR Product Synonyms Gelose ; Agar-Agar Section 2 Hazards Identification This substance or mixture has not been classified at this time according Agar is a dried hydrophilic colloidal substance obtained from various species to the Globally Harmonized System (GHS) of Classification and Labeling of of algae and, as such, presents a low hazard for normal laboratory handling. Chemicals. Dust may cause skin and eye irritation. Use with adequate ventilation. Wash thoroughly after handling. Dust dispersed in air is capable of creating a dust Signal word: N/A explosion when exposed to an ignition source. Avoid dispersion of dust in air. Pictograms: N/A Target organs: None known. GHS Classification: N/A GHS Label information: Hazard statement: N/A Precautionary statement: N/A

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 Composition / Information o	Composition / Information on Ingredients				
Nommé Chimique	# CAS	%	EINECS		
Agar	9002-18-0	100%	232-658-1		
Section 4 First Aid Measures					

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: May cause transient irritation. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Extinguishing Media: Use any media suitable for extinguishing supporting fire.

General information: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool. Dust dispersed in air is capable of creating a dust explosion when exposed to an ignition source. Avoid dispersion of dust in air.

Section 6 **Accidental Release Measures**

Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation. Recover for use if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water. Avoid runoff into storm sewers and ditches which lead to waterways.

Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling.

Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale dusts. Wash thoroughly after handling. Remove and wash clothing before reuse.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Section 8 **Exposure Controls / Personal Protection Chemical Name** ACGIH (TLV) OSHA (PEL) NIOSH (REL) Exposure Limits: None established. None established. None established Agar

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-

approved respirator.

Physical & Chemical Properties Section 9 Appearance: White to light tan powder. Flammability (solid/gas): N/A Decomposition temperature: N/A Odor: Characteristic bland odor. Explosion limits: Upper: N/A Lower: N/A Viscosity: N/A Vapor pressure (mm Hg): Negligible. Molecular formula: (C₁₂H₁₈O₉)_X Molecular weight: 3000-9000 Odor threshold: N/A pH: N/A Vapor density (Air = 1): N/A . Melting / Freezing point: Decomposes. Relative density (Specific gravity): > 1.0 Boiling point: Decomposes. Solubility(ies): Insoluble in cold water. Soluble in boiling water. Flash point: Not flammable. Partition coefficient: (n-octanol / water): N/A Evaporation rate (= 1): N/A Auto-ignition temperature: N/A

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures and heat. Stable under recommended storage conditions.

Incompatibilities with other materials: Strong oxidizers and alkalies.

Hazardous decomposition products: Carbon oxides and smoke.

Section 11 **Toxicological Information**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Effects of overexposure: No specific hazard known. Agar is a dried hydrophilic colloidal substance obtained from various species of algae and, as such, presents a low hazard for normal laboratory handling. Contact with eyes may cause transient irritation. Exercise appropriate procedures to minimize potential hazards.

RTECS #: AW7950000 Oral-rat LD50: 11,000 mg/kg Oral-mouse LD50: 16,000 mg/kg Oral-rabbit LD50: 5800 gm/kg

Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be	These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.						
Section 14	Transport Information						
UN/NA number: None assigned Shipping name: Not Regulated. Hazard class: None assigned Packing group: None assigned Reportable Quantity: No Marine pollutant: No Exceptions: No							
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for the anl	nydrous form is	on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Agar		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16 Additional Information							
The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure.							

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	ALUMINUM CHLORIDE, HEXAHYDRATE	
Synonyms	None	
Section 2	Hazards Identification	
Signal word Pictograms Target orga	d: DANGER s: GHS05 ans: None known. ification: on (Category 1B) information: Hazard statement: tes severe skin burns and eye damage.	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P310+P331: IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Aluminum chloride		7784-13-6	100%	231-208-1 (anhydrous)	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam. DO NOT USE WATER!

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water hydrolyzes material, liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from humidity and water.

Section 8	Exposure Controls / Personal Protection				
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
Exposure Linnes.	Aluminum chloride	Not established	Not established	Not established	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties					
Appearance: Solid. V Odor: No odor Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: Data n Flash point: Non flar	Vhite crystalline powder a not available e int: Data not available iot available nmable	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density (Relative densit Solubility(ies):	te (=1): Data not a solid/gas): Data not a ts: Lower / Upper: D e (mm Hg): Data not av (Air = 1): Data not av y (Specific gravity): 456 g/L H ₂ O @ 20°C	vailable available bata not available available ailable 2.398-2.440 @ 20°C	Partition cc Auto-ignitio Decomposi Viscosity: Molecular f Molecular v	Defficient: Data no on temperature: I ition temperature: Data not available formula: AICI ₃ •6H weight: 241.43	ot available Data not available : Data not available ₂ O
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid:	Stable Excessive temperatures, heat,	Hazardo moisture.	us polymerization: \	Will not occur.			
Incompatible materi	als: Reacts violently with water.	Alcohols.					
Hazardous decompo	sition products: Aluminum oxi	des and hydrog	en chloride gas. Decc	mposition yields hig	hly toxic fumes	s of hydrochloric ac	sid.
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: 3311 mg/kg [anhydrous] Skin corrosion/irritation: Skin-rabbit - causes burns Serious eye damage/irritation: Eyes-rabbit - causes damage Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Infalation causes burning sensation, cough, laboured breathing, shortness of breath, sore throat. Ingestion: Ingestion causes skin burns. Eyes: Contact causes skin burns. Eyes: Contact causes severe deep burns. Simas and symptoms of exposure: Frecise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 29.6 mg/L/24 hours [anhydrous] Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 70 mg/L/24 hours [anhydrous] Toxicity to algae: Chlorella vulgaris (Algae), EC50 = .225 mg/L/4 months [anhydrous] Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	Transport Information (US	DOT / CANAD	DA TDG)			```	
UN/NA number: UN1759 Shipping name: Corrosive solids, n.o.s., (Aluminum chloride, hexahydrate) Hazard class: 8 Packing group: III Reportable Quantity: No Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 Kg 2012 ERG Guide # 154							
Section 15 Regulatory Information							
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Compone	າເ	ISCA		RUKA CODE	USL	NUSL	
Aluminum chloride		Listed	Not listed	Not listed	Listed	Not listed	₽
Section 16	Additional Information						
The information contains	al la sue fai fai d'una fa la sel un della sue una sue	of any kind In	nlovero chould use this is	formation only as a sur	an lamant to athe	r information acthors	d hu them and much make indepen

Chemical Product and Company Information

Section 1

80 Northwest Blvd. Nashua, NH 03063

(800) 225-3739

Page E1 of E2

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

Product ALUMINUM SULFATE, 18-HYDRATE

Synonyms Aluminum Sulfate, Octahydrate

Section 2 Hazards Identification Signal word: DANGER Pictograms: GHS05 Target organs: None known



GHS Classification:

Serious eye damage (Category 1)

GHS Label information: **Hazard statement**: H318: Causes serious eye damage.

Precautionary statement:

P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Aluminum sulfate		7784-31-8	100%	233-135-0		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Fire or excessive heat above 760°C (1400°F), may produce hazardous decomposition products of toxic and corrosive gases, Sulfur trioxide and Aluminum oxide. Sulfur trioxide is an oxidizing agent which supports combustion and will react with water to form Sulfuric acid.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from high humidity and water.

Section 8	Exposure Controls / Personal Protection				
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
Exposure Linnes.	Aluminum sulfate	Not established	Not established	Not established	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, white granules or powder. Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 86°C (187°F) Boiling point: Decomposes Flash point: Non flammable	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.61 @ 17°F Solubility(ies): 50 g/100 ml H ₂ O @ 0°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: $770^{\circ}C$ (1418°F) Viscosity: Data not available. Molecular formula: Al ₂ (SO ₄) ₃ •18H ₂ O Molecular weight: 666.45
Section 10 Stability & Reactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures and heat, high humidity and water.

Incompatible materials: Oxidizing agents and moisture.

Hazardous decomposition products: Sulfur trioxide and aluminum oxide.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 6207 mg/kg

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Eyes-rabbit - Severe irritant.

Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: This material hydrolyzes readily to form some sulfuric acid which acts as a tissue irritant, particularly to the lungs.

Ingestion: May cause irritation of gastrointestinal tract, nausea, vomiting, and purging. Human fatal dose recorded at 30 grams.

Skin: May cause skin irritation, especially under repeated or prolonged contact or when moisture is present.

Eyes: May irritate or burn eyes. Similarly for the aqueous solutions.

Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: BD1700000

Section 12 Ecological Information

Toxicity to fish: Salmo gairdneri (fish, estuary, fresh water), 0.5 mg/L/24 hours

Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 136 mg/L/15 minutes

Toxicity to algae: No data availa	ble
Persistence and degradability:	No
Mobility in soil: No data availab	le

Persistence and degradability: No data available Bioaccumulative potential: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.
Section 14
Transport Information (US DOT / CANADA TDG)

		•	,				
UN/NA number: N Hazard class: Not a Exceptions: Not a	lot applicable applicable pplicable	Shipping name Packing group 2012 ERG Guid	 a: Not Regulated b: Not applicable de # Not applicable 	Reportable Q	u antity : No	Mar	ine pollutant: No
Section 15 Regulatory Information							
A chemical is considered to	o be listed if the CAS num	ber for the anhydrous	s form is on the Inventory	/ list.			
Component	t	TSC	A CERLCA (R	Q) RCRA code	DSL	NDSL	WHMIS Classification
Aluminum sulfate		Liste	d Not listed	Not listed	Not listed	Not listed	Not listed
Section 16	Additional Informati	ion					
The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent of the information only as a supplement to other information gathered by them and must make independent of the information only as a supplement to other information gathered by them and must make independent of the information only as a supplement to other information gathered by them and must make independent of the information only as a supplement to other information gathered by them and must make independent of the information only as a supplement to other information gathered by them and must make independent of the information only as a supplement of the information gathered by the information of the information on th							

Section 1	Chemical Product and Company Information	Page E1 of E2
scient	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product AMMO	ONIUM CARBONATE	
Synonyms Diamm	nonium Carbonate / Crystal Ammonia	
Section 2	Hazards Identification	
This substance or m to the Globally Harm Chemicals. Signal word: WARN Pictograms: GHS07 Target organs: None Construction GHS Classification: Skin irritation (Categor STOT SE (Category 3 GHS Label informati H315: Causes skin irr H320: Causes eye irri H335: May cause resp	nixture has not been classified as hazardous according nonized System (GHS) of Classification and Labeling of NING 7 e known bry 2) ny 2B) 3) ion: Hazard statement: ritation. spiratory irritation.	 Precautionary statement: P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P332+P313: If skin irritation occurs: Get medical attention. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P362+P364: Take off contaminated clothing and wash it before reuse. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Ammonium carbonate	•	506-87-6	100%	208-058-0			
Section 4	First Aid Measures						

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Decomposes to ammonia and carbon dioxide at temperatures above 58°C (136°F).

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep container tightly sealed to avoid exposure to air and water.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Ammonium carbonate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: Ammonia odor Odor threshold: Dat pH: 9.0 (100 g/L H ₂ O Melting / Freezing po Boiling point: Decor Flash point: Not app	White lumps. : a not available)) int: 58°C (136°F) nposes licable	Evaporation rate (= 1): Data not availablePartition coefficient: Data not availableFlammability (solid/gas): Not applicableAuto-ignition temperature: Data not availableExplosion limits: Lower / Upper: Not applicableDecomposition temperature: Data not availableVapor pressure (mm Hg): 760 @ 60° C (140° F)Viscosity: Data not availableVapor density (Air = 1): Data not availableMolecular formula: (NH_4) ₂ CO ₃ Relative density (Specific gravity): 150 @ 20° C/4°CMolecular weight: 96.09					t available Data not available ∷ Data not available D ₃
Section 10	Stability & Reactivity				1		
Chemical stability: Conditions to avoid	Stable Becomes unstable upon expo	Hazardo sure to air and c	ous polymerization: V	/ill not occur. ⊨bicarbonate. This p	process libera	tes ammonia and c.	arbon dioxide.
Incompatible materi and other alloys.	als: Sodium hypochlorate, aci	ls and acid salts,	iron salts, zinc, alkaloi	ds, aluminum, and ca	alomel, sodiu	m nitrate and nitrite	s. Corrosive to nickel, copper
Hazardous decompo	osition products: Ammonia, c	arbon oxides, niti	rogen oxides. Contact	with water or prolong	ged exposure	to air may liberate	ammonia.
Section 11	Toxicological Information						
Acute toxicity: Data Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component STOT-single expose STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: Dust may coughing, vomiting, a pulse, and cyanosis. Ingestion: Causes inr Skin: Contact causes Signs and symptom minimize potential ha Additional information	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalaton: Dust may cause irritation of the nose, throat, and lungs. Ammonia vapors released upon decomposition may cause irritation of the upper respiratory tract, with coughing, vomiting, and redness to the mucous membranes. Higher concentrations (>1000 ppm) may cause irritation of the upper respiratory tract, with coughing, vomiting, and redness to the gastrointestinal tract. Symptoms may include nausea, vomiting, and diarrhea. Skin: Contact causes irritation. Symptoms include redness, itching, and pain. Causes burning or serious burns if decontamination is delayed. Eyes: Contact causes irritation, redness, and pain. Causes burning or serious burns if decontamination is delayed. Eyes: Contact causes irritation, redness, and pain. Causes burning or serious burns if decontamination is delayed. Signs and symptoms of exposure: Persons with pre-existing lung disease may be more susceptible to the effects of this substance. Exercise appropriate procedures to minimize notential hazards.						
Section 12	Ecological Information						
Toxicity to fish: Car Toxicity to daphnia a Toxicity to algae: No Persistence and deg Mobility in soil: No Other adverse effect	Toxicity to fish: Carassius auratus (Fish, fresh water) LC100: 240 mg/L/4 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea) EC0: ≥ 100 mg/L/24 hours Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.						
Section 13	Disposal Considerations						
These disposal guid	delines are intended for the different Dispose of in acc	disposal of cata	log-size quantities or	nly. Federal regulations or (ations may a	pply to empty con	itainer. State and/or local
Section 14	Transport Information (U	S DOT / CANAI	DA TDG)	ian regulations of t			iour diopoour agonoy.
UN/NA number:	Not applicable Shin	oing name: N	lot Regulated				
Hazard class: No	t applicable Pack	ing group: N	ot applicable	eportable Quant	ity: 5 000 l	bs (2270 Ka)	Marine pollutant: No
Exceptions: Not	Facentions: Not applicable 2012 FRG Guide # Not applicable Reportable Quantity. 5,000 lbs (2270 rg) Marine pollutant. NO						
Section 15	Regulatory Information		i i ot applicable				
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Ammonium carbonate	2	Listed	5,000 lbs (2270 Kg)	Not listed	Listed	Not listed	Uncontrolled product
Section 16	Additional Information						
The information containe	d herein is furnished without warra	nty of any kind. En	ployers should use this in	formation only as a sup	plement to othe	er information gathere	d by them and must make indepen

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua NH 03063 Not for drug, food or household use. (800) 225-3739 AMMONIUM CHLORIDE Product Synonyms Ammonium Muriate ; Sal Ammoniac Section 2 **Hazards Identification** Signal word: WARNING Precautionary statement: Pictograms: GHS07 P264: Wash hands thoroughly after handling. Target organs: None known P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. **GHS Classification:** P337+P313: If eye irritation persists: Get medical attention. Acute toxicity, oral (Category 4) P501: Dispose of contents/container to a licensed chemical disposal agency in Eye irritation (Category 2A) accordance with local/regional/national regulations. GHS Label information. Hazard statement: H302: Harmful if swallowed. H319: Causes serious eye irritation.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Ammonium chloride		12125-02-9	100%	235-186-4			
Section 4	First Aid Measures						

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Reacts violently with ammonium nitrate and potassium chlorate. This generates fire and explosion hazard. Vaporizes at temperatures of about 335°C (653°F) evolving fumes of nitrogen oxides, chloride ions and ammonia gas.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Ammonium chloride fume	TWA: 10 mg/m ³ STEL: 20 mg/m ³	None established	TWA: 10 mg/m ³ STEL: 20 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, white, crystalline powder Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 520°C (968°F) Boiling point: Sublimes @ 340°C (644°F) Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: as NH ₃ Lower: 15% Upper: 28% Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.527 Solubility(ies): Soluble in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: NH ₄ Cl Molecular weight: 53.49

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Somewhat hygroscopic. Has an acid reaction in aqueous solution, solid tends to lose ammonia and become more acid on exposure and in storage. **Incompatible materials:** Oxidizing agents, acids, bases, lead and silver salts.

Hazardous decomposition products: Ammonia and hydrogen chloride.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 1,650 mg/kg

Skin corrosion/irritation: Skin-rabbit - Slight irritant.

Serious eye damage/irritation: Eyes-rabbit - irritant. Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation of dust or fume from heating may cause upper respiratory tract irritation, coughing, and choking sensation.

Ingestion: Ingestion of large doses cause nausea, vomiting, acidosis, irritation of the mouth, esophagus and gastric system. Ingestion may result in low grade toxicity. Skin: Contact with skin causes irritation and/or dermatitis.

Eves: Contact with eves causes irritation and/or visual impairment.

Signs and symptoms of exposure: See Potential health effects above. Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: BP4550000

Section 12 Ecological Information

Toxicity to fish: Salmo clarki (fish, fresh water, marine), LC50 = 123.8 - 166.6 mg/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Artemia salina (Crustacea), EC50 = 28 mg/L/24 hours Toxicity to algae: Dunaliella tertiolecta (Algae) EC40 = 21.3 mg/L/90 minutes Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.						
Section 13 Disposal Considerations						
These disposal guidelines are intended for the dis regulations may be different. Dispose of in accord	posal of catal ance with all	og-size quantities or local, state and fede	nly. Federal regulations or	ations may ap contract with	pply to empty con a licensed chemi	tainer. State and/or local ical disposal agency.
Section 14 Transport Information (US I	OOT / CANAD	A TDG)				
UN/NA number:Not applicableShippinHazard class:Not applicablePackinExceptions:Not applicable2012 E	UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No					
Section 15 Regulatory Information						
A chemical is considered to be listed if the CAS number for the	anhydrous form	is on the Inventory list.				
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Ammonium chloride Listed 5000 lbs (2270 kg) Not listed Listed Not listed					D2B	
ection 16 Additional Information						

SDS No.: AA0264

Section 1	Chemical Product and Company Information	
scient	B0 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product AMMON	NIUM HYDROXIDE, 28-30%	
Synonyms Ammon	ium Hydroxide, Water Solution	
Section 2	Hazards Identification	
Signal word: DANGE Pictograms: GHS05 Target organs: Eyes, GHS Classification: Skin corrosion (Catego STOT-SE (Category 3) GHS Label informatio H314: Causes severe H335: May cause resp H400: Very toxic to aqu	ER / GHS09 , Skin, Mucous membranes ory 1B) ory 1B) on: Hazard statement: skin burns and eye damage. oiratory irritation. uatic life.	 Precautionary statement: P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P310: Immediately call a POISON CENTER or doctor. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312: Call a POISON CENTER or doctor if you feel unwell. P363: Wash contaminated clothing before reuse. P311: Collect spillage. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Water Ammonium hydroxide	(as Ammonia)	7732-18-5 1336-21-6	Approximately 70-72% Approximately 28-30%	231-791-2 215-647-6		
Section 4	First Aid Measures					

INGESTION: MAY BE FATAL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE FATAL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors formed from this product are heavier than air and may travel along the ground to a distant source of ignition and flash back instantly.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Carefully neutralize with Sodium bicarbonate, absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts/vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Evenesuus Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Linius.	Ammonia CAS No. 7664-41-7	TWA: 17 mg/m ³ : STEL: 24 mg/m ³	TWA: 50 ppm, 35 mg/m ³	TWA: 18 mg/m ³ : STEL: 27 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

approved respirator.							
Section 9	Physical & Chemical Proper	rties					
Appearance: Clear, of Odor: Strong, punger Odor threshold: Data pH: Data not available Melting / Freezing po Boiling point: 36°C (Flash point: Data not	colorless liquid. tt, suffocating odor. a not available. e. sint: -77°C (-106°F) 97°F) t available	tte (Water = 1): 1 solid/gas): Data not a ts: Lower / Upper: 1 e (mm Hg): 115 mm ((Air = 1): 0.6-1.2 ty (Specific gravity): (Complete in water.	vailable. 3% / 27%(NH ₃ gas) 9 20°C (68°F) 9.900	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data no on temperature: 6 sition temperature: Data not available. formula: NH ₄ OH weight: 35.05	ot available 551°C (1204°F) : Data not available.	
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid: Incompatible materia Hazardous decompo	Stable Excessive temperatures which o als: Acids, strong oxidizers, halo sition products: Decomposes t	Hazardo cause evapora gens, heavy m to ammonia ga	us polymerization: V lion. etals. s and above 450°C (84	Vill not occur. 2°F) to hydrogen ga	s and nitroge	n oxides.	
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: 350 mg/kg [Ammonium hydroxide, anhydrous] Skin corrosion/irritation: Skin-rabbit - Severe irritant. Serious eye damage/irritation: Eyes-rabbit - Severe irritant. Respiratory or skin sensitization: Data not available Gern cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects. STOT-repeated exposure: Data not available Potential health effects: Inhalation: Burning sensation, cough, labored breathing, shortness of breath, sore throat. Ingestion: Abdominal cramps, abdominal pain, sore throat, vomiting, Skin: Redness, skin burns, pain, blisters. Eyes: Redness, pain, blurred vision, burns. Signs and symptoms of exposure: Material is extremely destructive to tissue of the mucous membranes, upper respiratory, gastrointestinal and digestive tracts, eyes and skin. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.							
Section 12	Ecological Information						
Toxicity to fish: LC50 Lepomis macrochirus (bluegill) 0.024-0.093 mg/L/48H Toxicity to daphnia and other aquatic invertebrates: LC50 Daphnia magna (water flea) 0.66 mg/L/48H @ 22°C Toxicity to algae: TLm Diatom (algae) 420 mg/L/120H @ 22°C (50% growth reduction) Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid	lelines are intended for the dis different Dispose of in accord	posal of cata	log-size quantities of local_state and fede	nly. Federal regulations or o	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/or local
Section 14	Transport Information			na regulatione er s			
UN/NA number: 0	JN2672 Shipping na	me: Ammo	nia solution				
Hazard class: 8 Packing group: III Reportable Quantity: 1,000 lbs (454 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 L 2012 ERG Guide # 154							
Section 15 Regulatory Information							
A chemical is considered	to be listed if the CAS number for the	anhydrous form	is on the Inventory list.				
Componer	າເ	ISCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Ammonium hydroxide		Listed	1,000 lbs (454 kg)	Not listed	Listed	Not listed	E
Section 16	Additional Information						

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	AMMONIUM OXALATE	
Synonyms	Ethanedioic Acid Diammonium Salt	
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classi Acute toxicit Acute toxicit Skin irritation Eye irritation Eye irritation GHS Label H302: Harm H312: Harm H314: Cause	 I: DANGER : GHS05 / GHS07 ns: Cardiovascular system, Central nervous system, Liver, Kidneys fication: y, oral (Category 4) y, dermal (Category 4) n (Category 1B) i (Category 1) information: Hazard statement: ful if swallowed. ful in contact with skin. es severe skin burns and eye damage. 	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P310+P331: IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P312: Call a POISON CENTER or doctor if you feel unwell. P362+P364: Take off contaminated clothing and wash it before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Ammonium oxalate		6009-70-7	99-100%	214-202-3 (anhydrous)	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: Decomposes on heating and burning. This material produces toxic and corrosive fumes including amnmonia and ntirogen oxides. Reacts with oxidizers.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection				
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
Exposure Linnes.	Ammonium oxalate	Not established	Not established	Not established	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	erties					
Appearance: Solid. Odor: No odor Odor threshold: Da pH: 6.4 (0.1M solution Melting / Freezing p Boiling point: Data Flash point: Data no	White crystalline powder ta not available on) oint: 70°C (158°F) not available ot available	Evaporation r Flammability Explosion lim Vapor pressur Vapor density Relative dens Solubility(ies)	ate (= 1): Data not a (solid/gas): Data not a its: Lower / Upper: D re (mm Hg): Data not av (Air = 1): Data not av ity (Specific gravity): 11.8 g/100ml water @	vailable available vata not available available ailable 1.5 g.cm ³ 2 50°C (122°F)	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data n on temperature: ition temperature Data not available formula: (NH ₄) ₂ C weight: 142.11	not available Data not available $\mathbf{z}: Data not available\mathbf{z}: Data not available\mathbf{z}: D_2 0_4 \cdot \mathbf{H}_2 0$
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable : Excessive temperatures and h	Hazard	ous polymerization: \	Will not occur.			
Incompatible mater	ials: Strong oxidizers and acids.						
Hazardous decomp	osition products: Ammonia and	d nitrogen oxide	es.				
Section 11	Toxicological Information						
Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-single exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May be harmful if inhaled. Symptoms include cough and sore throat. Ingestion: Harmful if swallowed. Symptoms include abdominal pain, vomiting, convulsions, drowsiness, dullness, shock or collapse. Skin: Contact with skin causes redness, burning sensation, and pain. Eyes: Contact with skin causes redness, pain and burns. Signs and symptoms of exposure: This substance may cause effects on the kidneys and calcium balance after ingestion. This may result in impaired functions. Exposure t high concentrations could cause death. The substance may have effects on the kidneys. Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental bazard cannot be excluded in the event of unprofessional bandling or disposal							
Section 13 Disposal Considerations							
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	Transport Information (US	DOT / CANA	DA TDG)				
UN/NA number: UN1759 Shipping name: Corrosive solids, n.o.s., (Ammonium oxalate) Hazard class: 8 Packing group: III Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 Kg 2012 FRG Guide # 154 154							
Section 15	Regulatory Information	-					
A chemical is considered	d to be listed if the CAS number for th	e anhydrous forn	n is on the Inventory list.				
Compone	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Ammonium oxalate		Listed	Not listed	Not listed	Not listed	Not listed	C D2B
							U
Section 16	Additional Information						

Section 1	Chemical Product and Company Information	Page E1 of E2				
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.				
Product	AMMONIUM PERSULFATE					
Synonyms	Ammonium Peroxydisulfate / Diammonium Peroxydisulfate					
Section 2	Section 2 Hazards Identification					
Signal word: Pictograms: Target organs: Target organs: Oxidizing solid Acute toxicity, Skin irritation (Skin sensitizat Eye irritation (Respiratory se STOT-SE (Cat GHS Label inin H272: May inte H302: Harmful H315: Causes H317: May cat H319: Causes H334: May cat H335: May cat	DANGER GHS03 / GHS07 / GHS08 s: None known	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves/protective clothing/eye protection/face protection. P284: Wear respiratory protection. P370+P378: In case of fire: Use flooding amounts of WATER ONLY to extinguish. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P333+P313: If skin irritation or rash occurs: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. 				

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Ammonium persulfate		7727-54-0	100%	231-786-5	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use flooding amounts of WATER ONLY for extinguishing fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Do not use carbon dioxide or other gas-filled fire extinguishers, they will have no effect on decomposing persulfate. This material is an explosion hazard when mixed with finely powdered organic matter, metal powder or reducing agents. Closed containers may rupture violently when heated.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Page E2 of E2

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from easily combustible or oxidizable substances.

Section 8	Exposure Controls / Personal Prot	ection		
	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linnes.	Ammonium persulfate	TWA: 0.1 mg/m ³	Not established	Not established

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: No odor Odor threshold: Da pH: Data not availat Melting / Freezing p Boiling point: Data Flash point: Data n	White crystals ta not available ole oint: Data not available not available ot available	Evaporation ra Flammability (Explosion lim Vapor pressur Vapor density Relative densi Solubility(ies)	ate (=1): Data not a (solid/gas): Data not a its: Lower / Upper: E re (mm Hg): Data not (Air = 1): 7.9 ity (Specific gravity): : Soluble in water	vailable available Jata not available available 1.92	Partition of Auto-ignit Decompose Viscosity: Molecular Molecular	coefficient: Data n ion temperature: sition temperature Data not available formula: (NH ₄) ₂ S weight: 228.20	ot available Data not available 2 Data not available 2 D ₈
Section 10	Stability & Reactivity						
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable I: Excessive temperatures, heat	Hazarde , sparks, open fl	ous polymerization: ame and other sources	Vill not occur. s of ignition. Keep av	way from com	bustible and organ	ic materials.
Incompatible mater	ials: Strong reducing agents, a	kalies and finely	powdered metals. Ma	y decompose on exp	posure to moi	st air or water.	
Hazardous decomp	osition products: May release	oxygen, sulfur a	and nitrogen oxides.				
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: >5 mg/kg ; skin-rabbit LD50: >5 g/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Carrinogenity: Data not available Carrinogenity: Data not available Carrinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Dat not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory effects. STOT-repeated exposure: Dat not available Potential health effects: Inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Ingestion: Hard wed. Skin: Causes skin irritation. May causes anallergic skin reaction. Eyee: Causes serious eye irritation.							
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	Transport Information (U	S DOT / CANA	DA TDG)				
UN/NA number: Hazard class: 5. Exceptions: Lim	UN/NA number: UN1444 Shipping name: Ammonium persulfate Hazard class: 5.1 Packing group: III Reportable Quantity: No Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 Kg 2012 ERG Guide # 140 Marine pollutant: No						
Section 15	Regulatory Information						
A chemical is considere	d to be listed if the CAS number for t	he anhydrous form	n is on the Inventory list.				
Compone	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Ammonium persulfat	e	Listed	Not listed	Not listed	Listed	Not listed	(C: D2A; D2B)
Section 16	Additional Information						

Section 1

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Chemical Product and Company Information

80 Northwest Blvd.

shua NH 03063

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

	scientific (800) 225-3739	
Product	AMMONIUM THIOCYANATE	
Synonyms	Thiocyanic Acid, Ammonium Salt	
Section 2	Hazards Identification	
GHS Class Acute toxici Acute toxici Chronic aqu GHS Label H302: Harm H312: Harm H312: Harm H412: Harm	d: WARNING s: GHS07 ans: Central nervous system. ification: ty, Oral (Category 4) ty, Inhalation (Category 4) ty, Dermal (Category 4) uatic toxicity (Category 3) information: Hazard statement(s): nful if swallowed. nful if swallowed. nful if swallowed. nful in contact with skin. nful if inhaled. nful to aquatic life with long lasting effects. ontact with acids liberates very toxic gas.	 Precautionary statement(s): P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P362+P364: Take off contaminated clothing and wash it before reuse. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Ammonium thiocyana	te	1762-95-4	min 99%	217-175-6	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Contact with acids liberates very toxic gas.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from acids and acid fumes. Keep away from oxidizers and alkalies. Slightly hygroscopic material. Protect from moisture.

Section 8	Exposure Controls / Personal Protection				
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
	Ammonium thiocyanate	None established.	None established.	None established.	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical I	Properties		
Appearance: White, Odor: No odor. Odor threshold: Dat pH: 6.5-7 @ 1% aque Melting / Freezing point Boiling point: Data n Flash point: 5°C (41	crystalline solid. a not available. cous solution : Approximately 149°C (~300°l not available °F)*	Evaporation rate (Butyl acetate = 1): <1 @ 25°C Flammability (solid/gas): Not flammable. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.3 Solubility(ies): Complete in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: NH ₄ SCN Molecular weight: 76.12	
Section 10	Stability & Reactivity			
Chemical stability: Conditions to avoid: Incompatible materi	Stable Avoid moisture. Exposure als: Strong oxidizers and a	Hazardous polymerization: Will not occur. to air may affect product quality. alkalies, acids or acid fumes.		
Hazardous decompo	sition products: Hydrog	en sulfide, ammonia and hydrogen cyanide, nitrogen oxides, sulfu	ır oxides.	
Section 11	Toxicological Informa	tion		
Acute toxicity: Oral-rat LD50: 750 mg/kg Skin corrosion/irritation: Data not available. Serious eye damage/irritation: Data not available. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause headaches, coughing, difficulty breathing, dizziness. May irritate respiratory system Ingestion: Ingestion may cause cramps, nausea, vomiting, dizziness, gastrointestinal irritation. Skin: May cause irritation and skin rash. Eyes: Contact with eyes may cause irritation. Signs and symptoms of exposure: See Potential health effects above.				
Section 12	Ecological Information	1		
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.				
Section 13	Disposal Consideration	ons		
These disposal guid regulations may be	delines are intended for different. Dispose of in	the disposal of catalog-size quantities only. Federal regular accordance with all local, state and federal regulations or c	tions may apply to empty container. State and/or local contract with a licensed chemical disposal agency.	
Section 14	Transport Information	1		
UN/NA number: Hazard class: Not Exceptions: Not	Not applicable stapplicable applicable 2	Shipping name: Not Regulated Packing group: Not applicable Reportable Quarticable 2012 ERG Guide # Not applicable Image: Contract of the second	ntity: 5,000 lbs (2270 kg) Marine pollutant: No	
Section 15	Regulatory Informatio	n		

Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Ammonium thiocyanate Listed 5,000 lbs (2270 kg) Not listed Listed Not listed Not listed

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	BARIUM CHLORIDE, DIHYDRATE	
Synonyms	Barium Dichloride	
Section 2	Hazards Identification	
Signal word Pictograms Target organ GHS Classif Acute toxicity Acute toxicity GHS Label i H301: Toxic H332: Harmi	I: DANGER : GHS06 ns: Cardiovascular and Central nervous systems, Kidneys fication: y, oral (Category 3) y, inhalation (Category 4) information: Hazard statement: if swallowed. ful if inhaled.	 Precautionary statement: P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor. P330: Rinse mouth. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Barium chloride, dihy	drate	10326-27-9	100%	233-788-1 (anhydrous)	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Readily absorbs moisture. Keep dry.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Barium and soluble compounds, as Ba	TWA: 0.5 mg/m ³ (A4)	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties					
Appearance: Solid. Odor: No odor. Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: 1560° Flash point: Not flam	White, crystalline powder I a not available. I e. V pint: 925°C (1696°F) V C (2840°F) I mable S	Evaporation rate (= 1): Data not availablePartition coefficient: Data*lammability (solid/gas): Data not available.Auto-ignition temperatureExplosion limits: Lower / Upper: Data not availableDecomposition temperature/apor pressure (mm Hg): NegligibleViscosity: Data not available/apor density (Air = 1): 7.21Molecular formula: BaCl2Relative density (Specific gravity): $3.1 @ 24^{\circ}C$ Molecular weight: 244.28			coefficient: Data n ion temperature: sition temperature Data not available formula: BaCl ₂ ·H weight: 244.28	ot available Data not available :: Data not available. :. ₂ O	
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid	Stable : Excessive temperatures and he	Hazardo at.	ous polymerization: \	Vill not occur.			
Incompatible materia	als: Bromine trifluoride and 2-fur	an percarboxyl	ic acid, violent reactior	1.			
Hazardous decompo	osition products: Chlorine gas,	hydrochloric ac	id and barium oxide, b	arium dust.			
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: 118 mg/kg Skin corrosion/irritation: Skin-rabbit: Irritant Serious eye damage/irritation: Eyes-rabbit: Irritant Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation cause irritation of the respiratory tract, sore throat, coughing and labored breathing. Ingestion: Infalation cause irritation of the respiratory tract, sore throat, coughing and labored breathing. Ingestion: Inhalation cause redness and pain. Eyes: Contact with skin may cause redness and pain. Eyes: Contact with skin may cause redness, pain and blurred vision. Signs and symptoms of exposure: May cause tremors, faintness, paralysis of arms and legs, and slow or irregular hearbeat. Severe cases may produce collapse and death on respiratory failure. Ingestion may be fatal. Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: Leuciscus idus (fish, fresh water), LC50 = 870 mg/L Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 21.9 mg/L/48 hours Toxicity to algae: Chlorella vulgaris (Algae), NOEC = 3.5 mg/L/4 months Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be	delines are intended for the dis different. Dispose of in accor	sposal of cata dance with all	log-size quantities o local, state and fed	nly. Federal regul eral regulations or	ations may a contract with	apply to empty con n a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (US	DOT / CANAI	DA TDG)				
UN/NA number: Hazard class: 6.1 Exceptions: Limi	UN/NA number: UN1564 Shipping name: Barium compounds, n.o.s., (Barium chloride) Hazard class: 6.1 Packing group: III Reportable Quantity: No Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 Kg 2012 FRG Guide # 154 State Marine pollutant: No						
Section 15	Regulatory Information	Ŭ					
A chemical is considered	to be listed if the CAS number for the	e anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Barium chloride		Listed	Not listed	D005	Listed	Not listed	

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
S	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product B	BARIUM HYDROXIDE, OCTAHYDRATE	
Synonyms B	Barium Hydrate / Barium Octahydrate	
Section 2	Hazards Identification	
Signal word: D Pictograms: G Target organs: Spleen, Liver GHS Classifica Acute toxicity, or Acute toxicity, in Skin corrosion (C GHS Label info H302: Harmful it H314: Causes s H332: Harmful it	DANGER GHS05 / GHS07 : Heart, Nerves, Kidneys, Gastrointestinal tract, Bone marrow, ation: oral (Category 4) nhalation (Category 4) (Category 1B) Category 1) ormation: Hazard statement: if swallowed. severe skin burns and eye damage. if inhaled.	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P312: Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Barium hydroxide, oo	stahydrate	12230-71-6	90-100%	241-234-5	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: TOXIC IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IF ABSORBED THROUGH SKIN. CAUSES BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Barium and soluble compounds, as Ba	TWA: 0.5 mg/m ³ (A4)	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	erties					
Appearance: Solid. Odor: No odor. Odor threshold: Da pH: Data not availab Melting / Freezing pr Boiling point: Data not Flash point: Data not	White, crystalline powder a not available. le. pint: Data not available not available t available	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative densit Solubility(ies):	tte (= 1): Data not a solid/gas): Data not a ts: Lower / Upper: D e (mm Hg): Data not (Air = 1): Data not av ty (Specific gravity): Moderately soluble in	vailable Ivailable. ata not available available ailable 2.18 I water.	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data no ion temperature: sition temperature Data not available formula: Ba(OH) ₂ weight: 315.48	ot available Data not available : Data not available. •8H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable Air, dusting, and incompatible r	Hazardo naterials.	ous polymerization: \	Vill not occur.			
Incompatible materi	als: Acids, strong oxidizers, and	chlorinated rub	ber. Corrosive to meta	als such as zinc.			
Hazardous decomp	osition products: Barium oxide						
Section 11	Toxicological Information						
Section 11 Toxicological Information Acute toxicity: Oral-rat LD50: 308 mg/kg Skin corrosion/irritation: Skin-rabbit - Highly irritating. Serious eye damage/irritation: Eyes-rabbit - Highly irritating. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available Marce No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available StoT-repeated exposure: Data not available Action: Inhalation causes irritation to the nose, throat, and respiratory tract. Symptoms include sore throat, coughing and shortness of breath. Systemic poisoning may occur in sensitive individuals with symptoms similar to those of ingestion. Ingestion: Ingestion causes severe irritation of the gastrointestinal tract, tightness in the muscles of the face and neck, vomiting, and diarrhea, abdominal pain, muscular termors, anxiety, weakness, labored breathing, cardiac irregularity, convulsions, and death from cardiac and respiratory failure. Skin: Contact may cause irritation and/or burns. Eyes: Contac							
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal gui regulations may be	delines are intended for the did different. Dispose of in acco	sposal of cata rdance with all	log-size quantities o local, state and fed	nly. Federal regul eral regulations or	lations may a contract with	apply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (US	DOT / CANAL	DA TDG)				
UN/NA number:	UN2923 Shipping n	ame: Corros	sive solid, toxic, n.o.	s., (Barium hydro	xide, octahyo	drate)	
Hazard class: 8,	(6.1) Packing gr	oup: III	Reporta	ble Quantity: No)	Mari	ne pollutant: No
Exceptions: Lim	teo quantity equal to or less	uian 5 Kg	2012 ER	Guide # 154			
Section 15	Regulatory Information	e anhydroue form	is on the Inventory list				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification

Section 16 Additional Information

Barium hydroxide

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Not listed

Listed

D002, D005

Listed

Not listed

D2B

(7

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 Scientific (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	BARIUM NITRATE	
Synonyms	Barium Dinitrate / Nitric Acid, Barium Salt	
Section 2	Hazards Identification	
Signal word Pictograms Target organ GHS Classifi Oxidizing sol Acute toxicity Acute toxicity GHS Label i H272: May in H302: Harmit H332: Harmit	: DANGER GHS03 / GHS07 ns: Central nervous system, Kidneys.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and reducing agents. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301+P330: IF SWALLOWED: Rinse mouth. P312: Call a POISON CENTER or doctor if you feel unwell. P370+P378: In case of fire: Use water to extinguish. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Barium nitrate		10022-31-8	100%	233-020-5	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Although not flammable, substance is a strong oxidizer which releases oxygen on heating, increasing the burning rate of any material.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Barium and soluble compounds, as Ba	TWA: 0.5 mg/m ³ (A4)	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid. White crystalline powder. Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 592°C (1097°F) Boiling point: Decomposes Flash point: Non flammable	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): Data not available Relative density (Specific gravity): 3.24 @ 23°C Solubility(ies): 8.7 g/100 ml in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Ba(NO ₃) ₂ Molecular weight: 261.35

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Do not heat or rub with organic matter or other oxidizable substance. e.g. sulfur, sulfides, phosphides, hypophosphites, etc.

Incompatible materials: Barium oxides, magnesium and zinc, reducing agents and combustible materials.

Hazardous decomposition products: Nitrogen oxides, barium oxide, barium dust and/or fume.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 355 mg/kg

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Data not available

Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause cough, shortness of breath, sore throat.

Ingestion: Ingestion causes excessive salivation, abdominal cramps, abdominal pain, diarrhea, nausea, vomiting, shortness of breath, weakness.

Skin: Contact with skin may cause irritation.

Eyes: Contact with eyes causes irritation.

Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: CQ9625000

Section 12 Ecological Information

Toxicity to fish: No data available

Mobility in soil: No data available

Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (water flea, age <24 neonate), EC50 = 0.512 mM/24 hours

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

rogalation of may be	amorona Biopo		nee man an	loodi, otato alla loat	nai rogalationo or	oonaaot ma		noar alopooar agoiroj.
Section 14	Transport Info	ormation (US DC	T / CANAD	A TDG)				
UN/NA number: Hazard class: 5.1 Exceptions: No e	UN1446 , (6.1) exceptions	Shipping nam Packing group 2012 ERG Gui	e: Barium o: II de# 141	nitrate Reportal	ole Quantity: No)	Mar	ine pollutant: No
Section 15	Regulatory Infe	ormation						
A chemical is considered	d to be listed if the CA	S number for the an	hydrous form	is on the Inventory list.				
Compone	nt		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Barium nitrate			Listed	Not listed	Not listed	Listed	Not listed	(2) (2) C ; D1A; D2B
Section 16	Additional Info	ormation						

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua NH 03063 Not for drug, food or household use. (800) 225-3739 **CALCIUM CARBONATE** Product Synonyms Marble Chips / Boiling Chips / Marble Rocks / Limestone Section 2 **Hazards Identification** This substance or mixture has not been classified as hazardous according Precautionary statement: to the Globally Harmonized System (GHS) of Classification and Labeling of P260: Do not breathe dust. Chemicals. P314: Get medical advice/attention if you feel unwell. P501: Dispose of contents/container to a licensed chemical disposal agency in Signal word: WARNING accordance with local/regional/national regulations. Pictograms: GHS08 Target organs: None known GHS Classification: *STOT-RE (Category 2) GHS Label information: Hazard statement: *H373: May cause damage to organs (lungs) through prolonged or repeated exposure (inhalation). * Respirable dust particles containing crystalline silica may be generated by crushing. There are no known hazards associated with this material when used as recommended.

Ca Prop 65 - WARNING! This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Calcium carbonate Quartz		1317-65-3 14808-60-7	≥ 99% 0.1-1.0%	215-279-6 238-878-4			
Section 4	First Aid Measures						

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: PROLONGED INHALATION OF PARTICULATE DUST MAY BE HARMFUL. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE ABRASIONS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Product will not burn or support fire. Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: Limestone reacts with acids to release carbon dioxide.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

 $\label{eq:conditions} \mbox{ for Safe Storage: Store in a cool, dry, well-ventilated area.}$

Section 8	Exposure Controls / Personal Protection					
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
	Particulates not otherwise classified	TWA: 5 mg/m ³ respirable fraction	None established	None established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	perties					
Appearance: Solid. V Odor: No odor. Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: Data n Flash point: Not flam	White stone chips. a not available. e. sint: Data not available not available imable	Evaporation rate (=1): Not applicable Partition coefficient: Not applicable Flammability (solid/gas): Data not available. Auto-ignition temperature: Not applicable Explosion limits: Lower / Upper: Not flammable Decomposition temperature: 826°C (1520°F) Vapor pressure (mm Hg): Data not available Viscosity: Data not available. Vapor density (Air = 1): Data not available Molecular formula: CaCO ₃ Relative density (Specific gravity): 2.85 Molecular weight: 100.09					plicable Not applicable 2: 826°C (1520°F) 2.
Section 10	Stability & Reactivity				1		
Chemical stability: Conditions to avoid	Stable Avoid contact with acids.	Hazardo	us polymerization:	Will not occur.			
Incompatible materi	als: Reacts with acids to libera	ate carbon dioxide					
Hazardous decompo	osition products: Carbon dio	kide.					
Section 11	Toxicological Information						
Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Garcinogenity: Data not available Carcinogenity: Data not available MTP: Known to be a human carcinogen (respirable). [crystalline silica]* IARC classified: Group 1: Carcinogenic to humans. [crystalline silica]* IARC classified: Group 1: Carcinogenic to humans. [crystalline silica]* OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Inhalation - May cause damage to organs through prolonged or repeated exposure. [crystalline silica]* Aspiration hazard: Data not available STOT-single exposure: Inhalation - May cause damage to organs through prolonged or repeated exposure. [crystalline silica]* Aspiration hazard: Data not available STOT-single exposure: Inhalation - May cause damage to organs through prolonged or repeated exposure. [crystalline silica]* Aspiration hazard: Data not available STOT-single exposure: Inhalation - May cause damage to organs through prolonged or repeated exposure. [crystalline silica]* Aspiration hazard: Data not available Stot: Nay cause congestion and irritation in nasal and respiratory passages. Ingestion: Ingestion may cause gastrointestinal irritation and blockage. Skin: May cause abraions. Eyes: May cause mild to severe irritation by abrasion with dust or chips. Signs and symptoms of exposure: Prolonged inhalation of particulate dust, may result in silicosis, a disabling pulmonary fibrosis characterized by fibrotic changes and miliary nodules in the lungs, a dry cough, shortness of breath, emphysema, decreased chest expansion, and increased susceptibility to tuberculosis. Additional information: RTECS #: FF9335000							
Section 12	Ecological Information						
Toxicity to fish: No Toxicity to daphnia Toxicity to algae: No Persistence and deg Mobility in soil: No Other adverse effect	Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.						
Section 13	Disposal Considerations						
These disposal guid regulations may be	lelines are intended for the different. Dispose of in acc	disposal of catal ordance with all	og-size quantities of local, state and fed	only. Federal regulations or	ations may ap contract with	oply to empty co a licensed chen	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information						
UN/NA number: Hazard class: No Exceptions: Not	Not applicableShipt applicablePaclapplicable2012	ping name: N king group: No ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	antity: No	Mar	ine pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for	the anhydrous form	is on the Inventory list.		50.	NDC:	
Compone Calcium carbonate	nt	Listed	Not listed	Not listed	Not listed	Listed	
Section 16	Additional Information						
The information containe	d herein is furnished without warra	nty of any kind. Em	ployers should use this i	nformation only as a su	pplement to othe	r information gather	ed by them and must make indepen

SDS No.: CC0075

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only.

Not for drug, food or household use.

Section 1

Chemical Product and Company Information

80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739

Product CALCIUM CHLORIDE, ANHYDROUS

Synonyms

Section 2 Hazards Identification

Signal word: WARNING Pictograms: GHS07 Target organs: None known

N/A



GHS Classification: Eye irritation (Category 2A)

GHS Label information: Hazard statement: H319: Causes serious eye irritation.

Precautionary statement:

P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 Composition / Information on	Composition / Information on Ingredients					
Chemical Name	CAS #	%	EINECS			
Calcium chloride Water Potassium chloride Sodium chloride Strontium chloride	10043-52-4 7732-18-5 7447-40-7 7647-14-5 10476-85-4	>91.0% 4.5% 2.5% 1.5% 0-1%	233-140-8 231-791-2 231-211-8 231-598-3 233-971-6			

Section 4 First Aid Measures

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Heat is generated when product mixes with water.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Hygroscopic material. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Particulates not otherwise classified	None established	TWA: 15 mg/m ³ total dust	None established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid. White pellets. Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 772°C (1422°F) Boiling point: Data not available Flash point: Not applicable	Evaporation rate (= 1): Not applicable Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): Data not available Relative density (Specific gravity): Data not available Solubility(ies): Soluble in water.	Partition coefficient: Not applicable Auto-ignition temperature: Not applicable Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: CaCl ₂ Molecular weight: 110.99
Section 10 Stability & Reactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Hygroscopic material. Avoid moisture.

Incompatible materials: Heat is generated when mixed with water. Spattering and boiling can occur. Avoid contact with sulfuric acid. Corrosive when wet. Flammable hydrogen may be generated from contact with metals such as zinc and sodium.

Hazardous decomposition products: None known.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 2100 mg/kg ; Dermal-rabbit LD50: >5000 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Dust may cause irritation to the upper respiratory tract (nose and throat). Ingestion: Low toxicity if swallowed. However, large amounts may result in gastrointestinal irritation or ulceration. Skin: Contact with skin may cause irritation and/or defatting on prolonged contact. Eyes: Contact with eyes may cause severe irritation and/or corneal injury. Signs and symptoms of exposure: See Potential health effects above. Additional information: RTECS #: EV9810000						
Section 12 Ecological Information						
Toxicity to fish: Lepomis macrochirus (bluegill) LC50: 8,350-10,650 mg/L Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (water flea), LC50: 759-3,005 mg/L Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available						
Section 13 Disposal Considerations			J. J			
These disposal guidelines are intended for the disp	osal of catal	og-size quantities o	only. Federal regulations or	ations may a	pply to empty con	tainer. State and/or local
Section 14 Transport Information			crainegulations of	contract with		ical disposal agency.
UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No						
Section 15 Regulatory Information						
A chemical is considered to be listed if the CAS number for the a	anhydrous form	is on the Inventory list.		Del	NDCI	WUME Classification
Component	Listed		Not listed	DSL	NDSL	
	LISIEU	NOLIISLEU	NOL IISLEO	LISIEU	NULIISLEU	D2B
Section 16 Additional Information						
The information contained herein is furnished without warranty of	of any kind. Em	ployers should use this i	nformation only as a su	upplement to othe	er information gathered	d by them and must make indepen-

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua NH 03063 Not for drug, food or household use. (800) 225-3739 CALCIUM HYDROXIDE Product Synonyms Hydrated Lime / Slaked Lime / Caustic Lime / Calcium Hydrate Section 2 Hazards Identification Signal word: DANGER Precautionary statement: Pictograms: GHS05 P260: Do not breathe dust Target organs: Eyes, Skin, Respiratory system P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. GHS Classification: P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for Skin corrosion (Category 1B) breathing. Eye damage (Category 1) P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. GHS Label information. Hazard statement: Remove contact lenses, if present and easy to do. Continue rinsing. H314: Causes severe skin burns and eye damage. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 Co	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Calcium hydroxide		1305-62-0	>98%	215-137-3			
Section 4 First	st Aid Measures						

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE BURNS AND EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

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Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection		
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Calcium hydroxide	TWA: 5 mg/m ³	TWA: 5 mg/m ³ Respirable fraction	TWA: 5 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	erties					
Appearance: Solid. V Odor: No odor. Odor threshold: Dat pH: Data not availabl Melting / Freezing poi Boiling point: as Car Flash point: Not flam	Vhite to yellow powder. a not available. e. nt: as CaO 2850°C (5162°F) O 579°C (1076°F) imable	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density (Relative densit Solubility(ies):	te (= 1): Data not a solid/gas): Data not a s: Lower / Upper: D e (mm Hg): Data not a (Air = 1): Data not av y (Specific gravity): 1 0.185% @ 0°C in wa	vailable ivailable. ata not available available ailable 2.24 ter.	Partition co Auto-ignitic Decomposi Viscosity: I Molecular fo Molecular v	efficient: Data no on temperature: E tion temperature: Data not available. ormula: Ca(OH) ₂ veight: 74.10	ot available Data not available : Data not available.
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid:	Stable Absorbs CO ₂ from air to form o	Hazardo calcium carbonat	us polymerization: \	Vill not occur.			
Incompatible materia	als: Acids, fluorine.						
Hazardous decompo	sition products: None known						
Section 11	Toxicological Information						
Skin corrosion/mitation: Skin-labot - Initalit. Serious eye damage/irritation: Eyes-rabbit - Severe irritant Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Stoting exposure: Data not availab							
Section 12	Ecological Information						
Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 220 mg/L/48 hours Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
These disposal quic	lelines are intended for the d	isposal of catal	og-size guantities o	nly. Federal regula	ations may ap	oply to empty con	ntainer. State and/or local
regulations may be	different. Dispose of in acco	rdance with all	local, state and fed	eral regulations or o	contract with	a licensed chem	ical disposal agency.
Section 14	Transport Information (US	DOT / CANAD	DA IDG)				
Hazard class: No Exceptions: Not	t applicable Snipp t applicable Packi applicable 2012	ng name: N ng group: No ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	ntity: No	Mari	ne pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for th	e anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Calcium hydroxide		Listed	Not listed	D002	Listed	Not listed	₽
Section 16	Additional Information						
The information containe	d herein is furnished without warran	ty of any kind. Em	plovers should use this ir	formation only as a sur	plement to othe	r information gathere	d by them and must make indepen
Section 1	Chemical Product and Company Information	Page E1 of E2					
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	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.					
Product	CALCIUM NITRATE, TETRAHYDRATE						
Synonyms	Nitric Acid, Calcium(II) Salt / Calcium Nitrate, 4-Hydrate						
Section 2	Hazards Identification						
Signal word Pictograms Target orga GHS Classi Oxidizing sc Acute toxicit Eye damage GHS Label H272: May i H302: Harm H318: Caus	d: DANGER :: GHS03 / GHS05 / GHS07 ins: Blood ification: blid (Category 3) ty, oral (Category 4) e (Category 1) information: Hazard statement: intensify fire; oxidizer. iful if swallowed. es serious eye damage.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P370+P378: In case of fire: Use water to extinguish. P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. 					

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Calcium nitrate		13477-34-4	100%	233-332-1	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Although not flammable, substance is a strong oxidizer which releases oxygen on heating, increasing the burn rate of any material with a flare-burning effect. It may cause re-ignition after a fire is extinguished.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Calcium nitrate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical	Properties	
Appearance: Solid. White crystals Odor: No odor Odor threshold: Data not available pH: Data not available Melting / Freezing point: 45°C (113°F) Boiling point: Decomposes Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): 8.17 Relative density (Specific gravity): 2.36 Solubility(ies): 121 g/100 ml water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available Molecular formula: Ca(NO ₃) ₂ •4H ₂ O Molecular weight: 236.15
Section 10 Stability & Reactivity		
Chemical stability: Stable Conditions to avoid: Keep away from combu	Hazardous polymerization: Will not occur. stible materials.	

Incompatible materials: Ammonia, hydrozine and other reducing agents.

Hazardous decomposition products: Nitrogen oxides.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat | D50: 3900 mg/kg

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Eyes-rabbit - 500 mg/24 hour -Severe

Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause cough and sore throat.

Ingestion: Ingestion may cause abdominal pain, blue lips, fingernails and skin, confusion, convulsions, dizziness, headache, nausea, unconsciousness.

Skin: Contact with skin may cause irritation and/or defatting on prolonged contact.

Eyes: Contact with eyes may cause redness and pain.

Signs and symptoms of exposure: Ingestion could cause effects on the blood. This may result in formation of methaemoglobin. The effects may be delayed. Medical observation is indicated. Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: Data not available Ecological Information

Section 12

Toxicity to fish: No data available

Mobility in soil: No data available

Toxicity to daphnia and other aquatic invertebrates: No data available

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Transport Information (US DOT / CANADA TDG) Section 14

UN/NA number: UN1454 Hazard class: 5.1 Exceptions: Limited quantity ec	Shipping name: Calciun Packing group: III jual to or less than 5 Kg	n nitrate Reportal 2012 ER	ble Quantity: No G Guide # 140)	Mari	ne pollutant: No
Section 15 Regulatory Ir	formation					
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.						
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Calcium nitrate	Listed	Not listed	D001	Listed	Not listed	© °
Section 16 Additional In	formation					

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	CALCIUM SULFATE, DIHYDRATE	
Synonyms	Calcium Sulfate, 2H ₂ O	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label Precautiona	Ince or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of 4: None required 5: No symbol required 10: None known fication: None required 10: Information: Hazard statement: None required 10: Any statement: None required 10: Any statement: None required	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Calcium sulfate, dihyc	Irate	10101-41-4	>90%	231-900-3 [anhydrous]	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from moisture.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Calcium sulfate	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust	TWA: 10 mg/m ³ total dust			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	perties					
Appearance: Solid. White powder Evaporation rate (= Odor: No odor Flammability (solid/ga Odor threshold: Data not available Explosion limits: Low PI: Data not available Vapor pressure (mm H Melting / Freezing point: 128°C (262°F) Vapor density (Air = 1 Boiling point: Data not available Relative density (Sper Flash point: Data not available Solubility(ies): 0.24 g.				available available Data not available e vailable 2.32 @ 20°C	Partition co Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data n on temperature: lition temperature Data not available formula: CaSO4+2 weight: 172.10	ot available Data not available : Data not available 2H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid Incompatible mater Hazardous decomp	Stable I: Protect from moisture. Mater ials: Acids. osition products: Calcium ox	Hazardo rial will harden on des, sulfur oxide:	ous polymerization: a exposure to moisture s.	Will not occur.			
Section 11	Toxicological Information	I					
Acute toxicity: Dat. Skin corrosion/irrit: Serious eye damag Respiratory or skin Germ cell mutageni Carcinogenity: Dat NTP: No component IARC: No component OSHA: No component OSHA: No component Ca Prop 65: This pro Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health effi- Inhalation: May cau: Ingestion: May be h Skin: Contact with e Signs and symptor Additional informat	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May cause irritation of the throat and upper respiratory tract. Ingestion: May be harmful if swallowed. Because material hardens quickly after absorbing moisture, ingestion may result in obstruction, particulary at the pylorus. Skin: Contact with skin may cause irritat						
Section 12	Ecological Information						
Toxicity to fish: Gasterosteus aculeatus (fish, fresh water), LC100 = 10-15 g/L/1 day [anhydrous] Toxicity to daphnia and other aquatic invertebrates: Crangon crangon (Crustacea), NOEC = <2.5 g/L/24 hours [anhydrous]							
Section 13	Disposal Considerations						
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG)							
UN/NA number:Not applicableShipping name:Not RegulatedHazard class:Not applicablePacking group:Not applicableReportable Quantity:NoExceptions:Not applicable2012 ERG Guide # Not applicableReportable Quantity:No							
Section 15	Regulatory Information						
A chemical is considered	d to be listed if the CAS number for	the anhydrous form	n is on the Inventory list.		ופס	NDO	
	511L			Not lists d	Linter		
		LISTED	not listea	INOT IISTEO	LISTED	INOT IISTED	Uncontrollea product

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	CALCIUM SULFATE, ANHYDROUS, NON-INDICATING	
Synonyms	Drierite [®] Non-Indicating / Anhydrous Gypsum	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal worr Pictograms Target orga GHS Classi GHS Label Precaution	ance or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of : None required ins: None known ification: None required information: Hazard statement: None required ary statement: None required	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Calcium sulfate		7778-18-9	>98%	231-900-3	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Page E2 of E2

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from moisture.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Calcium sulfate	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust	TWA: 10 mg/m ³ total dust			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	perties					
Appearance: Solid Odor: No odor Odor threshold: Da pH: Data not availat Metting / Freezing p Boiling point: Data Flash point: Data n	White powder ata not available ble point: 1450°C (2642°F) not available ot available	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative densi Solubility(ies)	ate (=1): Data not a solid/gas): Data not ts: Lower / Upper: I e (mm Hg): Negligibi (Air = 1): Data not av ty (Specific gravity): : 0.21 g/100 ml water	available available Data not available e available 2.32-2.96 @ 18.75°C	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data no ion temperature: bition temperature Data not available formula: CaSO ₄ weight: 136.14	ot available Data not available : Data not available
Section 10	Stability & Reactivity				1		
Chemical stability: Conditions to avoid	Stable d: Protect from moisture. Mate	Hazardo rial will harden on	ous polymerization: exposure to moisture	Will not occur.			
	nais: Acius.						
Hazardous decomp	osition products: Calcium ox	ides, sultur oxides	5.				
Section 11	Toxicological Information	I					
Acute toxicity: Dat Skin corrosion/irrit Serious eye damag Respiratory or skir Germ cell mutagen Carcinogenity: Da NTP: No componen IARC: No componen OSHA: No compone Ca Prop 65: This pro Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: May cau Ingestion: May be h Skin: Contact with Signs and symptor Additional informatic	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May cause irritation of the throat and upper respiratory tract. Ingestion: May be harmful if swallowed. Because material hardens quickly after absorbing moisture, ingestion may result in obstruction, particulary at the pylorus. Skin: Contact with skin may cause irritation and/or defatting on prolonged contact. Eyes: Contact with eyes may cause irritation.						
Section 12	Ecological Information						
Toxicity to fish: Ga Toxicity to daphnia Toxicity to algae: C Persistence and de Mobility in soil: No Other adverse effec	Toxicity to fish: Gasterosteus aculeatus (fish, fresh water), LC100 = 10-15 g/L/1 day Toxicity to daphnia and other aquatic invertebrates: Crangon crangon (Crustacea), NOEC = <2.5 g/L/24 hours						
Section 13	Disposal Considerations						
These disposal gu regulations may be	idelines are intended for the e different. Dispose of in acc	disposal of cata ordance with al	log-size quantities of local, state and fed	only. Federal regul eral regulations or	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (L	S DOT / CANAI	DA TDG)				
UN/NA number:	Not applicable Ship	ping name: N	lot Regulated				
Hazard class: No	ot applicable Paci	king group: N	ot applicable	Reportable Qua	antity: No	Mari	ine pollutant: No
Section 15	Bogulatory Information	. EKG Guide #					
A chemical is considered	ed to be listed if the CAS number for	the anhydrous form	is on the Inventory list.				
Compon	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Calcium sulfate		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Castien 40	A dditional Information						

Chemical Product and Company Information Section 1 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua NH 03063 Not for drug, food or household use. (800) 225-3739 CITRIC ACID, MONOHYDRATE Product Synonyms 2-Hydroxy-1,2,3-Propane Tricarboxylic Acid Section 2 **Hazards Identification** This substance or mixture has not been classified as hazardous according Precautionary statement(s): to the Globally Harmonized System (GHS) of Classification and Labeling of P264: Wash hands thoroughly after handling. Chemicals. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Signal word: WARNING Remove contact lenses, if present and easy to do. Continue rinsing. Pictograms: GHS07 P337+P313: If eye irritation persists: Get medical attention. Target organs: None known GHS Classification: Eye irritation (Category 2) GHS Label information: Hazard statement(s): H319: Causes serious eye irritation.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Citric acid, monohydra	ate	5949-29-1	100%	201-069-1 (anhydrous)		
Section 4	First Aid Measures					

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for use if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Minimize dust generation.

Section 8	Exposure Controls / Personal Protection					
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Citric acid	Not listed	Not listed	Not listed		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Pro	perties	
Appearance: Solid. White, deliquescent crystals Odor: No odor. Odor threshold: Data not available pH: Unknown Melting / Freezing point: Loses H ₂ O @ 100°C (212°F) Boiling point: Decomposes Flash point: Non-flammable	Evaporation rate (=1): Not applicable Flammability (solid/gas): Not applicable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.542 Solubility(ies): Soluble in water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Not applicable Molecular formula: $C_6H_8O_7$ · H_2O Molecular weight: 210.14
Section 10 Stability & Reactivity		
Chemical stability: Stable	Hazardous polymerization: Will not occur	

Conditions to avoid: Excessive temperature and heat. Avoid dust formation.

Incompatible materials: Strong bases and oxidizing materials.

Hazardous decomposition products: Carbon oxides.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 12,000 mg/kg (anhydrous)

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Rabbit-highly irritating

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause irritation to mucous membranes causing sore throat, coughing and shortness of breath.

Ingestion: Ingestion may cause acute gastrointestinal irritation with abdominal pain.

Skin: Contact may cause irritation.

Eyes: Contact with eyes may cause irritation with redness, pain, possible eye burns, conjunctivitis, ulceration and permanent cloudiness.

Signs and symptoms of exposure: Long term over-exposure may cause damage to tooth enamel.

Additional information: RTECS #: GE7350000 (anhydrous)

Section 12 Ecological Information

Toxicity to fish: Lepomis macrochirus (Fish, Fresh water) LC50: 1,516 mg/l/96 hours (anhydrous)

Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea) EC50; ca. 120 mg/l/72 hours (anhydrous)

Toxicity to algae: Scenedesmus quadricauda (Algae) EC3: 640 mg/l/7 days (anhydrous)

Persistence and degradability: No data available Bioaccumulative potential: No data available

 Mobility in soil: No data available
 PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14	transport into	mation	
UN/NA number:	Not applicable	Shipping name:	Not Regulated

Hazard class: Not applicable Exceptions: Not applicable	Packing group: Not applicable 2012 ERG Guide # Not applicable		Reportable	Quantity: N	o Mar	Marine pollutant: No	
Section 15 Regulatory Informati	on						
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Citric acid, anhydrous	Listed	Not listed	Not listed	Listed	Not listed	E	

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
Scie	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product COE	BALT(II) CHLORIDE, HEXAHYDRATE	
Synonyms Coba	altous Chloride, Hexahydrate / Cobalt Dichloride, Hexahydrate	
Section 2	Hazards Identification	
Signal word: DAN Pictograms: GHS Target organs: EX Kidneys, Blood, He Construction CHS Classification Acute toxicity, oral Skin corrosion (Cat Serious eye damag Skin sensitisation (Respiratory sensiti: Mutagenicity (Cate Carcinogenicity (Cate Carcinogenicity (Cate Carcinogenicity (Cate Cate course (Cate Aquatic acute (Cate Aquatic acute (Cate Aquatic acute (Cate Aquatic acute (Cate Aquatic chronic (Cate CHS Label inform H302: Harmful if sw H314: Causes seve H317: May cause a H341: Suspected o H360: May damage	NGER 505 / GHS07 / GHS08 / GHS09 yes, Skin, Respiratory system, Gastrointestinal tract, Liver, sart, Reproductive system	 Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P284: Wear respiratory protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308+P313: IF exposed or concerned: Get medical attention. P363: Wash contaminated clothing before reuse. P391: Collect spillage. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

H410: Very toxic to aquatic life with long lasting effects.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Cobalt chloride, hexal	hydrate	7791-13-1	100%	231-589-4			
Section 4	First Aid Measures						

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Cobalt and inorganic compounds, as Co	TWA: 0.02 mg/m ³ (A3)	TWA: 0.1 mg/m ³ for metal dust & fume	TWA: 0.05 mg/m ³ for metal dust & fume			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-

approved respirator.							
Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: Hydrochloric a Odor threshold: Da pH: Data not availab Melting / Freezing p Boiling point: Data Flash point: Data n	Damp, red crystals. acid odor. ta not available. le. oint: Data not available not available ot available	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative densi Solubility(ies)	ate (= 1): Data not a (solid/gas): Data not a its: Lower / Upper: D re (mm Hg): Data not (Air = 1): Data not av ity (Specific gravity): : Soluble in water.	vailable available. Jata not available available ailable 1.92	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data ni ion temperature: ition temperature Data not available formula: CoCl ₂ •61 weight: 237.93	ot available Data not available : 400°C H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid Incompatible mater Hazardous decomp	Stable Excessive temperatures, mois ials: Strong oxidizers. Corrosiv osition products: Sublimes at	Hazardo ture. Material is e to aluminum w 500°C into HCl ç	ous polymerization: \ 3 hygroscopic. vhen wet. gas. Thermal decompo	Will not occur. Disition may produce	chlorine.		
Section 11	Toxicological Information						
Acute toxicity: Ora Skin corrosion/irrit Serious eye damag Respiratory or skin Germ cell mutagen Carcinogenity: Dat NTP: No component IARC classified: Gro OSHA: No compone Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Prolonge Ingestion: May caus Skin: Prolonged or r Eyes: Causes irritat Signs and symptor	Section 11 toxcological information Acute toxicity: Oral-rat LD50: 766 mg/kg ; Dermal-rat LD50: >2,000 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC classified: Group 2B: Possibly carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Dat not available STOT-repeated exposure: Dat not available Potential health effects: Inhalation Inhalation: Prolonged or repeated inhalation may cause respiratory sensitization. May cause vimiting, dearrhea and a sensation of hotness. Skin: Prolonged or repeated exposure: Exercise appropriate procedures to minimize potential hazards. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.						
Section 12	Ecological Information						
Toxicity to fish: LC50 - Cyprinus carpio (Carp) - 0.33 mg/l - 96.0 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 1.1 - 1.6 mg/l - 48 h Toxicity to algae: EC50 - Chlorella vulgaris (Fresh water algae) - 0.5 mg/l - 96 h Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal gui regulations may be	These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.						
		amo: Corre	sive solid poidio int		halt chlorid	2)	
Hazard class: 8 Exceptions: Lim	ited quantity equal to or less	roup: II than 1 Kg	Reporta 2012 ER	ble Quantity: No G Guide # 154		e) Mari	ine pollutant: No
Section 15 Regulatory Information							
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Compone	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Cobalt chloride		Listed	Not listed	Not listed	Listed	Not listed	D2A; D2B
Section 16	Additional Information						





Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Cobalt nitrate		10026-22-9	100%	233-402-1 (anhydrous)		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. In contact with easily oxidizable substances it may react rapidly enough to cause ignition, violent combustion or explosion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Prot	tection		
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Cobalt and inorganic compounds, as Co	TWA: 0.02 mg/m ³ (A3)	TWA: 0.1 mg/m ³ metal dust and fume	TWA: 0.05 mg/m ³ metal dust and fume

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: Slight nitric a Odor threshold: Da pH: Data not availat Melting / Freezing p Boiling point: Data Flash point: Data n	Small red flakes cid odor. ata not available. ble. boint: 55°C (131°F) not available ot available	Evaporation r Flammability Explosion lim Vapor pressur Vapor density Relative dens Solubility(ies)	ate (Butyl acetate = 1) (solid/gas): Data not a its: Lower / Upper: D re (mm Hg): Data not av (Air = 1): Data not av ity (Specific gravity): :: Soluble in water.	: Data not available available. Data not available available ailable 1.88	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data n on temperature: ition temperature Data not available formula: Co(NO ₃ weight: 291.03	ot available Data not available : Data not available. J ₂ •6H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable d: Excessive temperatures, hea	Hazard t, sparks, open fl	ous polymerization: \ lame and other sources	Will not occur. of ignition. Moistur	e.		
Incompatible mater	rials: Oxidizers.						
Hazardous decomp	oosition products: Nitrogen oxi	des.					
Section 11	Toxicological Information						
Acute toxicity: Order of the production modulation Acute toxicity: Order of the production Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC classified: Group 28: Possibly carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhelation: Harmful if inhaled. Ingestion: Harmful in ingested. Skin: Contact causes irritation or acid burns. Eyes: Contact causes irritation or acid burns. Signs and symptoms of exposure: The substanc							
Section 12	Ecological Information						
Toxicity to fish: LC50 (Fresh water) = 1.5 µg/L Toxicity to daphnia and other aquatic invertebrates: LC50 (Fresh water) = 0.61 mg/L Toxicity to algae: LC50 (Fresh water) = 144 µg/L Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal							
Section 13	Disposal Considerations						
These disposal gu regulations may be	idelines are intended for the e different. Dispose of in acc	disposal of cata ordance with a	alog-size quantities o Il local, state and fede	nly. Federal regul eral regulations or	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (U	S DOT / CANA	DA TDG)				
UN/NA number: UN3085 Shipping name: Oxidizing solid, corrosive, n.o.s., (Cobalt dinitrate) Hazard class: 5.1, (8) Packing group: III Reportable Quantity: No Marine pollutant: No Excentions: Limited quantity equal to or less than 5 Kg 2012 ERG Guide # 140 2012 ERG Guide # 140 Marine pollutant: No							
Section 15	Regulatory Information	5		-			
A chemical is considere	ed to be listed if the CAS number for	he anhydrous forn	n is on the Inventory list.				
Compon	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Cobaltous nitrate he	xhydrate	Listed	Not listed	D001	Not listed	Not listed	C ; D2A ; D2B
Section 16	Additional Information						
The information contain		at a stand stand of the	and a construction of the second s	fame attack and the same and			

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	COPPER METAL	
Synonyms	Copper Metal Foil / Copper Foil	
Section 2	Hazards Identification	
This substa to the Globa Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label i Precautiona	Ince or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of I: Not classified ns: Liver, Kidneys fication: Not classified information: Hazard statement(s): Not classified ary statement(s): Not classified	Supplemental information: SHARP EDGES! ABRASIVE TO SKIN. USE CARE WHEN HANDLING. Do not breathe dust or fume. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Nommé Chimique		# CAS	%	EINECS	
Copper metal		7440-50-8	100%	231-159-6	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED AS FUME. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use triclass, dry chemical fire extinguisher. Do NOT use water on fire where molten metal is present.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Molten metals produce fume, vapor and/or dust that may be toxic and/or a respiratory irritant. Metal reacts with oxidizing agents.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Section 7	Handling & Storage			Page E2 of E2			
Read label on contain adequate ventilation.	ner before using. Do not wear contact lens Wash thoroughly after handling.	ses when working with chemicals. Keep	container tightly closed. Keep out c	of reach of children. Use with			
Handling: Use with a dling. Remove and v	adequate ventilation. Avoid contact with ey vash clothing before reuse.	es, skin and clothing. Avoid ingestion.	Do not inhale fumes from molten me	tals. Wash thoroughly after han-			
Storage: Store in a c	cool, dry, well-ventilated area away from inc	compatible substances.					
Section 8	ection 8 Exposure Controls / Personal Protection						
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits.	Copper, dusts and mists, as Cu	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³			
Engineering contro should wear safety g	Is: Facilities storing or utilizing this materia lasses, goggles, or faceshield, lab coat or	I should be equipped with an eyewash a apron, appropriate protective gloves.	facility and a safety shower and fire e se adequate ventilation to keep airbo	extinguishing material. Personnel orne concentrations low.			
Respiratory protect approved respirator.	tion: None should be needed in normal lab	oratory handling at room temperatures.	If dusty conditions prevail, work in f	ume hood or wear a NIOSH/MSHA-			
Section 9	Physical & Chemical Properties						

Appearance: Solid. Red-brown, lustrous metal.

Staction 10 Stability & Reactivity Chemical stability: Stabile Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temporatures and heat. Incompatibilities with other materials: Storing oxidizers may cause a violent reaction. Hazardous decomposition products: At temporatures above melling point, toxic humes or vapors may be emitted. Section 11 Toxicological Information: Acute toxicity: Data not available Section 12 Section 12 Data not available Section 23 Data not available Section 24 Data not available Section 24 Data not available Section 24 Data not available Cerricogenity: Data not available Cerricogenity: Data not available Cerricogenity: Data not available Cerricogenity: Data not available String 14 Data not available COSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a cacingen or potential carcingen by VRCC. String 14 String 14 Voctority 15 String 14 Potential heath effects: Inhibitity 25 Inhibities 24 String 14 Inhibities 24 String 14 String 14 Excession 1	Appearance: Solid. Turns green on expos Odor: No odor. Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: 2595° Flash point: Not app	Red-brown, lustrous metal. ure to moist air. a not available. e. sint: 1083°C (1981°F) C (4703°F) licable	Evaporation rate (= 1): Not applicable Partition coefficient: Data not available Flammability (solid/gas): Not applicable Auto-ignition temperature: Not applicable Explosion limits: Lower / Upper: Not applicable Partition coefficient: Data not available Vapor pressure (mm Hg): 1 mm @ 1628°C Decomposition temperature: Data not available. Vapor density (Air = 1): Data not available Molecular formula: Cu Relative density (Specific gravity): 8.92 @ 20°C Molecular weight: 63.55					ot available Not applicable : Data not available.
Charactors stability: St	Section 10	Stability & Reactivity						
In compatibilities with other materials: Stong oxidizers may cause a violent reaction. Hazardous decomposition products: At temperatures above melling point, toxi funes or vapors may be emitted. Section 1 Toxicological information Acute toxicity: Data not available Skin corrosion/irritation: Data not available Respiratory or skin sensitization: Data not available Respiratory Data not available Re	Chemical stability: S Conditions to avoid:	Stable Excessive temperatures and	Hazardo heat.	us polymerization:	Will not occur.			
Hazardous decomposition products: At temperatures above melting point, toxic fumes or vapors may be emitted. Section 11 Toxicological Information Ante toxicity: Data not available Section 2 Section 2 Formation available Betriaus systemation: Data not available Section 2 Component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. MP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by OSHA. Reproductive contribution of the product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by OSHA. Stort - present exposure: Data not available Stort - present exposure: Data not available Stort - present exposure: Data not available Stort - present exposure: Data not available Stort - present enderses. Stort - present enderses. Eyes: Contract with eyes may cause refiness and pain. Signs and syntheme of exposure: Over - head in the cause inflation of the upper respiratory tack, metalic laste in the company of the like symptoms and calcesse and copper deposition in the come. Additional Information. Exposition in the available Signs and syntheme of exposition. Copper dust and faine cause inflation of the upper respiratory tack, metalic laste in the mouth, and nauses. Chronic poisoning results in Wilsons	Incompatibilities with	n other materials: Strong oxi	dizers may cause	a violent reaction.				
Section 11 Toxicological Information Actist toxicity:: Data not available startos say duringtion:: Data not available carrinogenity:: Data not available carrinogenitrinogenity:: Dat	Hazardous decompo	sition products: At temperat	ures above meltin	g point, toxic fumes o	or vapors may be emit	ted.		
Acute toxicity: Data not available Skin corrosolwinitration: Data not available Respiratory or skin sensitization: Data not available Garcinogenity: Data not available Machine Consolution: Data not available Stription: Nag available Stription:	Section 11	Toxicological Information						
Section 12 Ecological Information Toxicity to fish: No data available Toxicity to fish: No data available Toxicity to algae: No data available Bioaccumulative potential: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPVB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed	Skin corrosion/irritat Serious eye damage Respiratory or skin s Germ cell mutagenic Carcinogenity: Data NTP: No component of IARC: No component OSHA: No component OSHA: No component STOT-single exposu STOT-repeated expoo Aspiration hazard: I Potential health effet Inhalation: Inhalation Ingestion: May be hat Skin: May cause irrita Eyes: Contact with eys Signs and symptoms skin and hair discolori disease characterized Additional informatio	tion: Data not available <i>itritation</i> : Data not available sensitization : Data not available sensitization : Data not available not available of this product present at levels of this product present at levels to find the present at levels of the product present at levels y: Data not available sure : Data not available Data not available cts : of dust or fumes may irritate more ful if swallowed. Symptoms tion and redness. yes may cause redness and pase s of exposure : Over-heating zation. Copper dust and fume by a hepatic cirrhosis, brain don: RTECS # : GL5325000	ble s greater than or e is greater than or els greater than or espiratory system. include abdomina ain. of alloy can produ cause irritation of amage, denyelina	qual to 0.1% is identi equal to 0.1% is iden equal to 0.1% is iden Symptoms include al pain, nausea, vomi ce metal fumes and o the upper respirator tion, renal disease an	fied as a known or ant lified as probable, pos ntified as a carcinogen cough, headache, sore ting. oxides. Fumes of copj y tract, metallic taste in nd copper depostion ir	ticipated carci sible or confir o or potential o e throat, short per may caus n the mouth, a n the cornea.	inogen by NTP. med human carcin carcinogen by OSH mess of breath. e metal fume fever and nausea. Chror	ogen by IARC. A. with flu-like symptoms and hic poisoning results in Wilson's
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and VPVB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DsL NDSL WHMIS Classification Copper <td>Section 12</td> <td>Ecological Information</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Section 12	Ecological Information						
Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed Not listed Listed Not listed Uncontrolled product Section 16 Additional Information The information only as a supplement to other informa	Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed Not listed Listed Not listed Uncontrolled product	Section 13	Disposal Considerations						
Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed Not listed Listed Not listed Uncontrolled product	These disposal guid regulations may be	elines are intended for the different. Dispose of in acc	disposal of catal ordance with all	og-size quantities of local, state and fed	only. Federal regulations or c	tions may ap contract with	oply to empty con a licensed chemi	tainer. State and/or local ical disposal agency.
UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No Section 15 Regulatory Information Achemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. VHMIS Classification Copper Listed Not listed Listed Not listed Uncontrolled product Section 16 Additional Information The information only as a supplement to other information only as a supplement to other information only as a supplement to other information on the must make independent	Section 14	Transport Information						
Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed Not listed Listed Not listed Uncontrolled product Section 16 Additional Information The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent	UN/NA number: If Hazard class: Not Exceptions: Not a	Not applicableShip: applicablePaclapplicable2012	ping name: N king group: No ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	ntity: No	Mari	ne pollutant: No
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed Not listed Listed Not listed Uncontrolled product Section 16 Additional Information Employers should use this information only as a supplement to other information gathered by them and must make independent	Section 15	Section 15 Regulatory Information						
Component ISCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Copper Listed Not listed Not listed Listed Not listed Uncontrolled product Section 16 Additional Information The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent	A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Section 16 Additional Information The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent	Componer	11	Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information cathered by them and must make independent	Section 16 Additional Information							
	The information contained	I herein is furnished without warran	ty of any kind. Emplo	overs should use this info	ormation only as a suppler	ment to other inf	formation gathered by	them and must make independent

determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure.

. . .

SDS No.: CC0500

Section 1 **Chemical Product and Company Information** CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua NH 03063 Not for drug, food or household use. (800) 225-3739 COPPER(II) CHLORIDE, DIHYDRATE Product Synonyms Cupric Chloride, Dihydrate Section 2 **Hazards Identification** Signal word: DANGER Precautionary statement: Pictograms: GHS06 / GHS07 / GHS09 P264: Wash hands thoroughly after handling. Target organs: Respiratory system, Liver, Kidneys. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P310: IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER or doctor. P302+P352: IF ON SKIN: Wash with plenty of water and soap. GHS Classification: P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Acute toxicity-oral (Category 3) Remove contact lenses, if present and easy to do. Continue rinsing. Skin irritation (Category 2) P332+P313: If skin irritation occurs: Get medical advice/attention. Eye irritation (Category 2A) P337+P313: If eye irritation persists: Get medical advice/attention. Aquatic acute toxicity (Category 1) P362+P364: Take off contaminated clothing and wash before reuse. Aquatic chronic toxicity (Category 1) P391: Collect spillage. P405: Store locked up GHS Label information: Hazard statement: P501: Dispose of contents/container to a licensed chemical disposal agency in H301: Toxic if swallowed accordance with local/regional/national regulations. H315: Causes skin irritation. H319: Causes serious eye irritation. H410: Very toxic to aquatic life with long lasting effects.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Cupric chloride, dihyd	Irate	10125-13-0	>98%	231-210-2 (anhydrous)	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

(2012 EMERGENCY RESPONSE GUIDEBOOK, (PHH50-ERG2012), GUIDE # 154)

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection							
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Limits:	Copper, dusts and mists, as Cu	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties			
Appearance: Blue-green, crystalline solid Odor: Odorless Odor threshold: Data not available pH: Data not available Melting / Freezing point: 100°C (230°F) Boiling point: Decomposes Flash point: Non-flammable	Evaporation rate (=1): Not applicable Flammability (solid/gas): Not applicable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.54 Solubility(ies): Soluble in water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: CuCl ₂ •2H ₂ O Molecular weight: 170.48		
Section 10 Stability & Reactivity				
Chemical stability: Stable	Hazardous polymerization: Will not occur			

Chemical stability: Stable

Conditions to avoid: Hygroscopic material. Avoid exposure or contact to extreme temperatures and incompatible materials

Incompatible materials: Potassium, sodium, hydrazine, nitromethane, aluminum, strong oxidizers, acetylene and sodium hypobromite.

Hazardous decomposition products: Copper oxides and hydrogen chloride.

Section 11 **Toxicological Information** Acute toxicity: Oral-rat LD50: 290 mg/kg ; Oral-human LD50: 200 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Symptoms of over-exposure may include irritation, sore throat, shortness of breath, ulceration and perforation of the nasal septum and upper respiratory tract irritation. Ingestion: May cause gastrointestinal irritation with symptoms such as nausea, vomiting and diarrhea. Skin: Contact with skin may cause symptoms of itching, redness, blistering and possible scarring, dermatitis. Eyes: Contact with eyes may cause redness, pain and blurred vision. Prolonged contact may cause corneal injury. Signs and symptoms of exposure: Copper salts impart a metallic taste in the mouth. Damage to the kidneys may occur in person's with Wilson's disease. High concentrations in contact with skin may result in burns. Chronic exposure may also lead to liver damage, anemia and other blood cell abnormalities. Additional information: RTECS #: GL7030000 Section 12 **Ecological Information** Toxicity to fish: Bluegill LC50: 0.9 mg/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna EC50: 0.04 mg/L/48 hours Toxicity to algae: Selenastrum EC50: 0.12 mg/L/96 hours Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: UN2802 Shipping name: Copper chloride Hazard class: 8 Packing group: III Reportable Quantity: 10 lbs (4.54 kg) Marine pollutant: Yes Exceptions: Limited quantity equal to or less than 5 Kg 2012 ERG Guide # 154 Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL NDSL WHMIS Classification Component TSCA CERLCA (RQ) RCRA code Cupric chloride (anhydrous) Listed 10 lbs (4.54 kg) Not listed Listed Not listed D2A: D2B Section 16 **Additional Information**

Section 1	Chemical Product and Company Information	Page E1 of E2
Sci	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product CO	OPPER(II) NITRATE, TRIHYDRATE	
Synonyms Cup	pric Nitrate, Trihydrate	
Section 2	Hazards Identification	
Signal word: DA Pictograms: GH Target organs: L Contemportant Oxidizing solid (Ca Acute toxicity, oral Skin irritation (Cate Aquatic acute (Ca Aquatic acute (Ca Aquatic acute (Ca Aquatic acute (Ca Aquatic acute (Ca BHS Label inform H272: May intensi H302: Harmful if s H315: Causes skin H319: Causes skin H319: Causes skin	ANGER ISO3 / GHSO7 / GHSO9 Liver Liver ton: Eategory 2) al (Category 4) tegory 2) legory 2A) ategory 1) Category 1) mation: Hazard statement: ify fire; oxidizer. swallowed. in irritation. rious eye irritation. to aquatic life with long lasting effects.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and reducing agents. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P332+P313: If skin irritation occurs: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P370+P378: In case of fire: Use water to extinguish. P391: Collect spillage. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Cupric nitrate		10031-43-3	100%	221-838-5 [anhydrous]			
Section 4	First Aid Measures						

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance is a strong oxidizer which releases oxygen on heating. The oxygen will intensify any fire in the immediate surrounding. Contact with easily oxidizable, combustible substance or powdered metals may cause fire or explosion upon ignition from any source. Strong oxidizers may explode when shocked, or if exposed to heat, flame, or friction. Also may act as initiation source for dust or vapor explosions.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Copper, dusts & mists, as Cu	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	erties					
Appearance: Solid. Odor: Slight nitric a Odor threshold: Da pH: Data not availal Melting / Freezing p Boiling point: Data Flash point: Non fla	ce: Solid. Blue, deliquescent crystals pht nitric acid odor. Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Partition coefficient: Data not available Auto-ignition temperature: Data not available. shold: Data not available. Explosion limits: Lower / Upper: Data not available. Auto-ignition temperature: Data not available. reezing point: 114.5°C (238°F) Vapor pressure (mm Hg): Negligible Viscosity: Data not available. not available Relative density (Specific gravity): 2.32 Molecular formula: Cu(NO ₃) ₂ ·3H ₂ O nt: Non flammable Solubility(ies): Soluble in water. Solubility(ies): Soluble in water.						ot available Data not available : Data not available.) ₂ •3H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable d: Avoid temperatures in excess of	Hazard of 338°F, which	ous polymerization: V cause decomposition.	/ill not occur.			
Incompatible mater	rials: Strong oxidizing agents, alu	ıminum cyanide	es, esters, sodium hypo	phosphite, stannous	s chloride and	thiocyanates.	
Hazardous decomp	oosition products: Nitrogen oxid	es, copper oxic	les and copper dust.				
Section 11	Toxicological Information						
Acute toxicity: Ora Skin corrosion/irrit Serious eye damag Respiratory or skir Germ cell mutagen Carcinogenity: Da NTP: No componen IARC: No componen OSHA: No componen OSHA: No componen STOT-single exposs STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Harmful Ingestion: Harmful Skin: Contact with s Eyes: Contact with Signs and sympton procedures to minim Additional informa	Section 11 Toxicological miorination Acute toxicity: Oral-rat LD50: 940 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Harmful if swallowed. Skin: Contact with skin causes irritation and/or burns. Eyers: Contact with skin causes irritation and/or burns. Eyers: Contact with eyes causes irritation and/or burns. Signs and symptoms of exposure: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Exercise appropriate						
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental bazard cannot be excluded in the event of unprofessional bandling or disposal							
Section 13	Disposal Considerations						
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	Transport Information (US	DOT / CANA	DA TDG)				
UN/NA number: UN1477 Shipping name: Nitrates, inorganic, n.o.s., (Cupric nitrate) Hazard class: 5.1 Packing group: III Reportable Quantity: 100 lbs (45.4 kg) Marine pollutant: No							
Section 15 Regulatory Information							
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list							
Compon	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Cupric nitrate		Listed	100 lbs (45.4 kg)	Not listed	Listed	Not listed	(C; D2B)
Section 16	Additional Information						

SDS No.: CC0531

Synonyms

oduct and Company Information

Section 1	Chemical Pi

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300

For laboratory use only. Not for drug, food or household use.

COPPER(II) SULFATE, ANHYDROUS Product Cupric Sulfate, Anhydrous

80 Northwest Blvd. ashua NH 03063

(800) 225-3739

Section 2 **Hazards Identification**

Signal word: WARNING Pictograms: GHS07 / GHS09 Target organs: Liver, Kidneys, Lungs, Spleen.



GHS Classification: Acute toxicity-oral (Category 4) Skin irritation (Category 2) Eye irritation (Category 2A) Aquatic acute toxicity (Category 1) Aquatic chronic toxicity (Category 1)

GHS Label information: Hazard statement:

H302: Harmful if swallowed.

- H315: Causes skin irritation.
- H319: Causes serious eve irritation.
- H410: Very toxic to aquatic life with long lasting effects.

Precautionary statement: P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313: If skin irritation occurs: Get medical attention. P337+P313: If eye irritation persists: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P391: Collect spillage. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Cupric sulfate		7758-98-7	>99%	231-847-6			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Prote	ection		
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linnes.	Copper, dusts and mists, as Cu	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, off-white powder Odor: Odorless Odor threshold: Data not available pH: Data not available Melting / Freezing point: 340°C (644°F) Boiling point: Decomposes Flash point: Non-flammable	Evaporation rate (= 1): Not applicable Flammability (solid/gas): Not applicable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.28 @ 15.6°C Solubility(ies): Appreciable in water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: CuSO ₄ Molecular weight: 159.60
Section 10 Stability & Peactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Hygroscopic material. Stable when kept dry, under normal temperature and pressure. Avoid high temperatures, exposure to air and incompatible materials.

Incompatible materials: Reducing agents, acetylene or nitromethane, magnesium, strong bases, alkalines, phosphates, hydrazine, zirconium. Can corrode aluminum, steel and iron.

Hazardous decomposition products: Oxides of sulfur and copper fumes.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 300 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May cause irritation to the mucous membranes and upper respiratory tract. Ingestion: Ingestion can cause irritation to the digestive tract and abdominal pain. Skin: Contact with skin causes slight irritation. Excessive exposure may cause allergic dermatitis. May cause irritation or burns on wet skin. Eyes: Can cause severe irritation and may result in irreversible eye damage. Signs and symptoms of exposure: Note to physician: Probable mucosal damage may contradict the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, gastrointestinal pain, diarrhea, dizziness, jaundice, and general debility. Additional information: RTECS #: GL8800000 Section 12 **Ecological Information** Toxicity to fish: Salmo gairdneri (fish, estuary, fresh water), LC50 = < 0.75-0.84 mg/L Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. **Transport Information** Section 14 UN/NA number: UN3077 Shipping name: Environmentally hazardous substances, solid, n.o.s., (Cupric sulfate) Hazard class: 9 Packing group: III **Reportable Quantity:** 10 lbs (4.54 kg) Marine pollutant: Yes 2012 ERG Guide # 171 Exceptions: Non regulated equal to or less than 4.539 Kg ; Reportable quantity equal to or more than 4.54 Kg Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL NDSL WHMIS Classification Component TSCA CERLCA (RQ) RCRA code Cupric sulfate Listed 10 lbs (4.54 kg) Not listed Not listed Not listed D2B

Section 16 Additional Information

SDS No.: CC0535

Section 1

Product Synonyms

Section 2

Signal word: WARNING Pictograms: GHS07 / GHS09 Target organs: Liver, Kidneys,

GHS Classification: Acute toxicity-oral (Category 4) Skin irritation (Category 2) Eye irritation (Category 2A)

Chemical Product and Company Information	
80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
COPPER(II) SULFATE, PENTAHYDRATE	
Cupric Sulfate, 5-Hydrate	
Hazards Identification	
WARNING GHS07 / GHS09 s: Liver, Kidneys, Lungs, Spleen. cation: -oral (Category 4) (Category 2) (Category 2A)	Precautionary statement: P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313: If skin irritation occurs: Get medical attention. P337+P313: If eye irritation persists: Get medical attention. P3064: Tele off cartering the detablisher and work it hefere reuse.

P391: Collect spillage.

P501: Dispose of contents/container to a licensed chemical disposal agency in

accordance with local/regional/national regulations.

GHS Label information: Hazard statement:

H302: Harmful if swallowed.

- H315: Causes skin irritation.
- H319: Causes serious eve irritation.

Aquatic acute toxicity (Category 1)

Aquatic chronic toxicity (Category 1)

H410: Very toxic to aquatic life with long lasting effects.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Cupric sulfate		7758-99-8	>99%	231-847-6 (anhydrous)				
Section 4	First Aid Measures							

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Prote	ection		
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linnes.	Copper, dusts and mists, as Cu	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties							
Appearance: Blue, crystalline solid Odor: Odorless Odor threshold: Data not available pH: 3.7-4.2 (10% solution) Melting / Freezing point: 150°C (302°F) Boiling point: Decomposes Flash point: Non-flammable	Evaporation rate (=1): Not applicable Flammability (solid/gas): Not applicable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): 20 torr @ 22.5°C Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.284 Solubility(ies): 31.6 g/100 ml water @ 0°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: 560°C (1040°F) Viscosity: Data not available. Molecular formula: CuSO ₄ •5H ₂ O Molecular weight: 249.68					
Section 10 Stability & Reactivity							

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Hygroscopic material. Stable when kept dry, under normal temperature and pressure. Avoid high temperatures, exposure to air and incompatible materials.

Incompatible materials: Reducing agents, acetylene or nitromethane, magnesium, strong bases, alkalines, phosphates, hydrazine, zirconium. Can corrode aluminum, steel and iron.

Hazardous decomposition products: Oxides of sulfur and copper fumes.

Section 11 Toxicological Information

5							
Acute toxicity: Oral-rat LD50: 300 mg/kg [Copper sulfate anhydrous] Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-sepeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May cause irritation to the mucous membranes and upper respiratory tract. Ingestion: Ingestion can cause irritation to the digestive tract and abdominal pain. Skin: Contact with skin causes slight irritation. Excessive exposure may cause allergic dermatitis. May cause irritation or burns on wet skin. Eyes: Can cause severe irritation and may result in irreversible eye damage. Signs and symptoms of exposure: Note to physician: Probable mucosal damage may contradict the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, gastrointestinal pain, diarrhea, dizziness, jaundice, and general debility. Additional Information: REFECS# CB1800000							
Section 12 Ecological Information							
Toxicity to fish: Salmo gairdneri (fish, estuary, fresh Toxicity to daphnia and other aquatic invertebrate Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard ca	Toxicity to fish: Salmo gairdneri (fish, estuary, fresh water), LC50 = < 0.75-0.84 mg/L [Copper sulfate anhydrous] Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available Other adverse effects: A environmental bazard cannot be excluded in the event of unprofessional bandling or disposal						
Section 13 Disposal Considerations							
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
	ama Fard			lid n a - 70			
UN/NA number: UN3077 Shipping name: Environmentally hazardous substances, solid, n.o.s., (Cupric sulfate) Hazard class: 9 Packing group: III Reportable Quantity: 10 lbs (4.54 kg) Marine pollutant: Yes Exceptions: Non regulated equal to or less than 4.539 Kg; Reportable quantity equal to or more than 4.54 Kg 2012 ERG Guide # 171							
Section 15 Regulatory Information							
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Cupric sulfate	Listed	10 lbs (4.54 kg)	Not listed	Not listed	Not listed	D2B	
Section 16 Additional Information							

Section 1	Chemical Product and Company Information	Page E1 of E2
scientif	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product CYCLOH	IEXANE	
Synonyms Hexahyd	robenzene	
Section 2	Hazards Identification	
Signal word: DANGEF Pictograms: GHS02 / Target organs: Centra Kidneys. GHS Classification: Flammable liquid (Category Aspiration hazard (Cate Skin irritation (Category STOT-SE (Category 3) Aquatic acute (Category Aquatic acute (Category Aquatic chronic (Category Aquatic chronic (Category Hadatic acute (Category Aquatic chronic (Category Hadatic chronic	R GHS07 / GHS08 / GHS09 Il nervous system, Vascular system, Heart, Lungs, Liver, V V gory 2) igory 1) '2) y 1) pr 1) n: Hazard statement: e liquid and vapour. vallowed and enters airways. ation. siness or dizziness. atic life. atic life with long lasting effects.	Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233: Keep container tightly closed. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P261: Avoid breathing mist/vapours/spray. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P310+P331: IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P332+P313: If skin irritation occurs: Get medical attention. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P362+P378: In case of fire: Use dry chemical, alcohol foam, carbon dioxide or water spray to extinguish. P331: Collect spillage. P403+P235: Store in a well-ventilated place. Keep cool. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Cyclohexane		110-82-7	100%	203-806-2			
Section 4	First Aid Measures						

INGESTION: MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY CAUSE DROWSINESS OR DIZZINESS. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors formed from this product are heavier than air and may travel along the ground to a distant source of ignition and flash back instantly.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Cyclohexane	TWA: 100 ppm / 344 mg/m ³	TWA: 300 ppm / 1050 mg/m ³	TWA: 300 ppm / 1050 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator

Section 9	Physical & Chemical Prop	erties						
Appearance: Clear, colorless liquid. Evaporation rate (Butyl acetate = 1): 6.10 P Odor: Characteristic ether odor. Flammability (solid/gas): Data not available. A Odor threshold: Data not available. Explosion limits: Lower / Upper: 1.2% / 8.0% D pH: Data not available. Vapor pressure (mm Hg): 78.0 @ 20°C (68°F) V Melting / Freezing point: 7°C (44.6°F) Relative density (Specific gravity): 0.784 M Flash point: -20°C (-4°F) TCC Solubility(ies): Soluble in water. M				Partition c Auto-ignit Decompos Viscosity: Molecular Molecular	coefficient: (n-octa ion temperature: 2 sition temperature Data not available formula: CH ₂ (CH weight: 84.16	nol / water): Log Pow: 3.44 245°C (473°F) : Data not available. ₂) ₄ CH ₂		
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid Incompatible materi Hazardous decomp	Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition. Incompatible materials: Strong oxidizers. Hazardous decomposition products: Oxides of carbon and various hydrocarbons form when heated to decomposition.							
Section 11	Toxicological Information							
Acute toxicity: Oral Skin corrosion/irrita Serious eye damagg Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component Reproductive toxici STOT-single expost STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: Inhalatior unconsciousness, an Ingestion: Ingestion Skin: Prolonged or rr Eyes: Contact with e Signs and symptom	Acute toxicity: Oral-rat LD50: 12,705 mg/kg ; Inhalation-mouse LC50: 70,000 mg/l/2hours ; Skin-rabbit LD50: >180 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects. STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause nasal and respiratory irritation, central nervous system effects including dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even death. Ingestion: Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration into lungs can cause chemical pneumonitis which can be fatal. Skin: Prolonged or repeated contact with skin can cause moderate irritation, defatting, and dermatitis. Eyes: Contact with eyes can cause severe irritation, redness, tearing, and blurred vision. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information							
Toxicity to fish: LC50 - Pimephales promelas (fathead minnow) - 32 - 93 mg/l - 96.0 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 3.78 mg/l - 48 h Toxicity to algae: No data available Persistence and degradability: Not readily biodegradable Bioaccumulative potential: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13	Disposal Considerations							
These disposal gui regulations may be	These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	Section 14 Transport Information (US DOT / CANADA TDG)							
UN/NA number: UN1145 Shipping name: Cyclohexane Hazard class: 3 Packing group: II Reportable Quantity: 1,000 lbs (454 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 128 128								
Section 15 Regulatory Information								
A chemical is considered	A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
	111	Listad			Listad	Notlisted		
Cyclonexane		LISTED	1,000 lbs (454 Kg)	0000	Listed	INUL IISTEO	(a) (T) ^{B2; D2B}	
SOCTION 16	Auditional information							

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	p-DICHLOROBENZENE	
Synonyms	1,4-Dichlorobenzene / para-Dichlorobenzene	
Section 2	Hazards Identification	
Signal word Pictograms Target organ GHS Classifi Eye irritation Carcinogenic Aquatic acut Aquatic acut Aquatic chro GHS Label i H319: Cause H351: Suspe H400: Very t H410: Very t	I: WARNING : GHS08 / GHS09 ns: Liver, Kidneys, Lungs, Central nervous system fication: (Category 2A) city (Category 2) e (Category 1) nic (Category 1) nic (Category 1) information: Hazard statement: as serious eye irritation. acted of causing cancer. oxic to aquatic life. oxic to aquatic life with long lasting effects.	 Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P273: Avoid release to the environment. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P308+P311: IF exposed or concerned: Call a POISON CENTER or doctor. P391: Collect spillage. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
p-Dichlorobenzene		106-46-7	100%	203-400-5			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	p-Dichlorobenzene	TWA: 10 ppm / 60 mg/m ³ (A3)	TWA: 75 ppm / 450 mg/m ³	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. V Odor: Mothball odor Odor threshold: Data pH: Data not available Melting / Freezing po Boiling point: 174°C Flash point: 66°C (1	White, crystalline powder a not available e int: 53°C (127.4°F) (345.2°F) 50°F) COC	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative densit Solubility(ies):	Partition coefficient: Data not available Auto-ignition temperature: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Molecular formula: $C_6H_4Cl_2$ Molecular weight: 147.00				ot available Data not available : Data not available
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid:	Stable Excessive temperatures and o	Hazardo open flame.	ous polymerization:	Will not occur.			
		any ayents.					
Hazardous decompo	sition products: Carbon oxid	es, chiorides and	i chiorines.				
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: 500 mg/kg ; Dernal-rat LD50: 2000 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: Reasonably anticipated to be a human carcinogen. IARC classified: Group 2B: Possibly carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause cough, drowsiness, headache, nausea, shortness of breath, vomiting and burning sensation. Ingestion: Insel with win may cause irritation. Skin: Contact with skin may cause irritation. Skin: Contact with eyes causes irritation. Eyes: Contact with eyes causes irritation. Star shortsmark and pain. Signs and symptoms of exposure: The substance may have effects on the liver, kidneys and blood. May effect the central nervous system. Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: Lepomis macrochirus (bluegill) LC50: 6400 µg/L/96H Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (water flea) EC50: 930 µg/L/14 days (fertility impairment) Toxicity to algae: Selenastrum capricornutum (algae) EC50: 1.6 mg/L/96H (inhibition of growth rate) Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: The substance is toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish.							
Section 13	Disposal Considerations						
These disposal guid	lelines are intended for the o	isposal of cata	log-size quantities o	only. Federal regul	ations may a	pply to empty co	ntainer. State and/or local
Section 14	Transport Information (U)			eral regulations of	contract with	a licensed chen	ilcal disposal agency.
			lot Regulated				
Hazard class: Not	applicable Back	ng group: N	ot applicable	Penortable Qua	antity: No	Mari	ine pollutant: No
Excentions: Not:	applicable 2012	FRG Guide #	Not applicable	Reportable Que	antity. No	Wall	
Section 15	Regulatory Information						
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list							
Componer	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
p-Dichlorobenzene		Listed	Not listed	U072	Listed	Not listed	(a) (T) B3; D2A
Section 16	Additional Information						
The information containe	d herein is furnished without warra	ity of any kind. Em	ployers should use this i	nformation only as a su	pplement to othe	er information gathere	ed by them and must make indepen

GENERAL STORAGE CODE GREEN

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	DIMETHYLGLYOXIME	
Synonyms	2,3-Butanedione dioxime	
Section 2	Hazards Identification	
This substa to the Globa Chemicals. Signal word Pictograms: Target organ GHS Classif GHS Label i Precautiona	nce or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of : None required : No symbol required ns: None known fication: None required nformation: Hazard statement: None required rry statement: None required	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Dimethylglyoxime		95-45-4	100%	202-420-1			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection							
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Limits:	Dimethylglyoxime	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Section 9 Physical & Chemical Properties							
Appearance: Solid. Odor: Perceptible oc Odor threshold: Dat pH: Data not availab Melting / Freezing po Boiling point: Data Flash point: Not flar	Off-white crystalline powder for ta not available le bint: 235-240°C (455-464°F) not available nmable	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative density Solubility(ies)	ate (=1): Data not a solid/gas): Data not its: Lower / Upper: I re (mm Hg): Negligibl (Air = 1): 4.0 (Specific gravity): Data : Slightly soluble in wa	befficient: Data n on temperature: ition temperature Data not available formula: (CH ₃ C:N weight: 116.12	ot available Data not available : Data not available : IOH) ₂			
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid	Stable : Excessive temperatures and	Hazardo other sources of	ous polymerization: ignition.	Will not occur.				
Incompatible materi	ials: Strong oxidizers, acids ar	nd reducing agent	S.					
Hazardous decomp	osition products: Carbon oxid	des, nitrogen oxid	les.					
Section 11	Toxicological Information							
Acute toxicity: Data Skin corrosion/irrita Serious eye damagg Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component Ca Prop 65: This pro Reproductive toxici STOT-single expose STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: May be ha Skin: Contact may c Eyes: Contact may c Signs and symptom not available. Exerci Additional informat	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Gern cell mutagenicity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: May be harmful if inhaled. May cause respiratory tract irritation. Ingestion: May be harmful if swallowed. Skin: Contact may cause irritation. Eyes: Contact may cause irritation. Eyes: Contact may cause irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not be							
Section 12	Ecological Information							
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13	Disposal Considerations							
These disposal guid regulations may be	These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	Section 14 Transport Information (US DOT / CANADA TDG)							
UN/NA number:	UN/NA number: Not applicable Shipping name: Not Regulated							
Hazard class: No Exceptions: Not	Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No							
Section 15 Regulatory Information								
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.								
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Dimethylglyoxime		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product	

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
Scien	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product ETHYL	LALCOHOL, DENATURED, 95% (190 PROOF)	
Synonyms Ethand	ol, Denatured, 95%	
Section 2	Hazards Identification	
Signal word: DANG Pictograms: GHS02 Target organs: Eyes Construction CHS Classification: Flammable liquid (Ca Acute toxicity, inhalat Skin irritation (Catego STOT-SE (Category S STOT-SE (Category S CHS Label informat H319: Causes skin in H319: Causes seriou H331: Toxic if inhaled H336: May cause dor H371: May cause dar	 SER 2 / GHS07 / GHS08 / GHS06 s, Central nervous system, Liver, Kidneys. A constraint of the system of the	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P332+P313: If skin irritation occurs: Get medical attention. P337+P313: If eye irritation persists: Get medical attention. P337+P333: Store in a well-ventilated place. Keep container tightly closed. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product contains a chemical known to the State of California to cause reproductive toxicity (Methanol, developmental).

Section 3 Composition / Information on	ection 3 Composition / Information on Ingredients							
Chemical Name	CAS #	%	EINECS					
Ethyl alcohol	64-17-5	80.75 - 81.51%	200-578-6					
Isopropyl alcohol	67-63-0	8.55%	200-661-7					
Water	7732-18-5	5.00%	231-791-2					
Methanol	67-56-1	3.80 - 4.08%	200-659-6					
Methyl isobutyl ketone	108-10-1	0.85 - 0.95%	203-550-1					

Section 4 First Aid Measures

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors formed from this product are heavier than air and may travel along the ground to a distant source of ignition and flash back instantly. Flame may not be visible in daylight.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Ethanol	STEL: 1000 ppm / 1880 mg/m ³ (A3)	TWA: 1000 ppm / 1900 mg/m ³	TWA: 1000 ppm / 1900 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Clear, colorless liquid. Odor: Mild characteristic odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: -114°C (-173°F)* Boiling point: 5°C (165.2-176°F)* Flash point: 5°C (41°F)*	Evaporation rate (Butyl acetate = 1): Ca 2^* Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: $4.0\%(V) / 20.0\%(V)^*$ Vapor pressure (mm Hg): Ca $50 @ 20^\circ$ C* Vapor density (Air = 1): Ca 1.5^* Relative density (Specific gravity): $0.7919 - 0.7955^\circ$ C @ $60/60^\circ$ F* Solubility(ies): Soluble in water.	Partition coefficient: (n-octanol / water): Low Pow:32* Auto-ignition temperature: 400°C (752°F)* Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Mixture Molecular weight: Mixture *I200 Proof Ethanoll
Section 10 Stability & Reactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition.

Incompatible materials: Strong oxidizers, inorganic acids and halogens.

Hazardous decomposition products: Oxides of carbon.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 7060 mg/kg; Inhalation-rat LC50: 124.7 mg/l/4hours [Ethanol]

Skin corrosion/irritation: Skin-rabbit - Slight irritant.

Serious eye damage/irritation: Eyes-rabbit - Severe irritant.

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC classified: Group 3: Not classifiable as to its carcinogenicity to humans. [Isopropanol]

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause dizziness, drowsiness, nausea, vomiting, inability to concentrate and irritation of the throat.

Ingestion: Ingestion causes dizziness, drowsiness, decreased reaction, euphoria, nausea, vomiting, staggering gait and coma.

Skin: Contact with skin causes irritation defatting on prolonged contact.

Eyes: Contact with eyes may cause blindness.

Signs and symptoms of exposure: See Potential health effects above.

Additional information: RTECS #: KQ6300000 [Ethanol]

Section 12 Ecological Information

Toxicity to fish: Oncorhynchus mykiss (fish, fresh water), LC50 = 11,200 mg/l/24 hours [Ethanol] Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacia), EC50 = 10,800 mg/l/24 hours [Ethanol, 99.8% pure] Toxicity to algae: Chlorella pyrenoidosa (Algae), EC50 = 9,310 mg/l/growth rate [Ethanol, absolute] Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: UN1170 Shipping name: Ethanol Hazard class: 3 Packing group: || Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No ERG Guide # 127 Exceptions: Limited quantity equal to or less than 1 L Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL CERLCA (RQ) RCRA code NDSL WHMIS Classification Component TSCA Ethanol Listed Not listed D001 Listed Not listed B2: D2B Methanol Listed 5.000 lbs. U154 Listed Not listed B2: D1B: D2A: D2B Isopropanol l isted Not listed Not listed Listed Not listed B2: D2B

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	FERRIC CHLORIDE, HEXAHYDRATE	
Synonyms	Iron(III) Chloride, Hexahydrate	
Section 2	Hazards Identification	
Signal word Pictograms Target organ GHS Classifi Corrosive to Acute toxicity Skin irritation Eye damage GHS Label i H290: May b H302: Harmi H315: Cause H318: Cause	I: DANGER : GHS05 / GHS07 ns: Eyes, Skin, Respiratory system, Liver, Gastrointestinal tract fication: metals (Category 1) y, oral (Category 4) h (Category 2) e (Category 1) information: Hazard statement: the corrosive to metals. ful if swallowed. as skin irritation. as serious eye damage.	 Precautionary statement: P234: Keep only in original container. P406: Store in corrosive resistant container with a resistant inner liner. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P332+P313: If skin irritation occurs: Get medical attention. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor. P362+P364: Take off contaminated clothing and wash it before reuse. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Ferric chloride, hexah	ıydrate	10025-77-1	100%	231-729-4 [anhydrous]		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. MAY CAUSE LIVER OR KIDNEYS DAMAGE. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Do NOT use water! Dry chemicals, CO2 or other agents as appropriate for surrounding fires.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. May release toxic fumes of Hydrogen chloride gas in a fire.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts or vapors. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources. Avoid contact with humid or wet areas. Keep away from metals.

Section 8	Exposure Controls / Personal Protection					
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
	Iron salts, soluble, as Fe	TWA: 1 mg/m ³	No listing	TWA: 1 mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	perties					
Appearance: Solid. Odor: Hydrochloric a Odor threshold: Da pH: 2 (0.1M solution Melting / Freezing p Boiling point: Data Flash point: Data n	rance: Solid. Yellow-brown lumps Evaporation rate (=1): Data not available Hydrochloric acid odor. Flammability (solid/gas): Data not available. rreshold: Data not available. Explosion limits: Lower / Upper: Data not available. (0.1M solution) Freezing point: 37°C (99°F) / Freezing point: Data not available Relative density (Specific gravity): Data not available point: Data not available Solubility(ies): 920 g/L in water.			ailable vailable. ata not available vailable ot available	Partition of Auto-ignit Decompos Viscosity: Molecular Molecular	coefficient: Data n ion temperature: sition temperature Data not available formula: FeCl ₃ ·61 weight: 270.30	ot available Data not available 2: Data not available. 2: H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable d: Excessive temperatures, hea	Hazard at, water, potassi	lous polymerization: W um, sodium, incompatible	/ill not occur. e materials.			
Incompatible mater	rials: Water, oxidizing agents, r	netals, strong ba	ises, reducing agents, al	cohols.			
Hazardous decomp	oosition products: Hydrogen g	gas on contact w	ith metals.				
Section 11	Toxicological Information	ı					
Skin corrosion/irrit Serious eye damag Respiratory or skin Germ cell mutagen Carcinogenity: Dat NTP: No component IARC: No componen OSHA: No compone Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Dust or v inflammation and pu Ingestion: May cause Skin: May cause se Eyes: May cause se Signs and symptor	Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Dust or vapors may be corrosive or irritating to the nose, throat and respiratory tract. Symptoms may include burning sensation, coughing, shortness of breath, lung inflammation and pulmonary edema. Ingestion: May cause severe liver or kidneys damage. May also cause gastrointestinal damage. Skin: May cause severe irritation, tearing, blurred vision, burns, severe damage, and permanent blindness.						
Section 12	Ecological Information	annyurous)					
Toxicity to fish: No Toxicity to daphnia Toxicity to algae: N Persistence and de Mobility in soil: No Other adverse effect Section 13	Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and VPVB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations						
These disposal gui regulations may be	idelines are intended for the different. Dispose of in acc	disposal of cat ordance with a	alog-size quantities on III local, state and fede	ly. Federal regul ral regulations or	lations may a contract with	apply to empty con h a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (L	IS DOT / CANA	DA TDG)				and a set of the set o
UN/NA number: UN1759 Shipping name: Corrosive solids, n.o.s., (Ferric chloride, hexahydrate) Hazard class: 8 Packing group: III Reportable Quantity: 1,000 lbs (454 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 Kg 2012 ERG Guide # 154							
Section 15	Section 15 Regulatory Information						
A chemical is considere	ed to be listed if the CAS number for	the anhydrous for	m is on the Inventory list.	BCBA code	Del	NDEL	WHMIS Classification
Ferric chloride, anhy	drous	Listed	1,000 lbs (454 kg)	Not listed	Listed	Not listed	

Section 16 Additional Information

SDS No.: FF0110

Section 1 Chemical Product and Company Information	
80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product FERRIC NITRATE, NONAHYDRATE	
Synonyms Iron(III) Nitrate, Nonahydrate	
Section 2 Hazards Identification	
This substance or mixture has not been classified as hazardous accordin to the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. Signal word: WARNING Pictograms: GHS03 / GHS07 Target organs: Blood GHS Classification: Oxidizing solid. (Category 3) Acute toxicity (Category 5) Skin irritation (Category 2) Eye irritation (Category 2) Eye irritation (Category 2) STOT-SE (Category 3) GHS Label information: Hazard statement(s): H272: May intensify fire; oxidizer. H303: May be harmful if swallowed. H315: Causes skin irritation.	ng ofPrecautionary statement(s):P210: Keep away from heat/sparks/open flames/hot surfaces No smoking. P220: Keep away from clothing and combustible or incompatible materials. P221: Take any precaution to avoid mixing with combustibles or incompatible materials. P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of soap and water P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P332+P313: If skin irritation occurs: Get medical advice/attention. P337+P313: If eye irritation persists: Get medical advice/attention. P337+P313: If eye irritation persists: Get medical advice/attention. P337+P313: If eye irritation persists: Get medical advice/attention. P337+P313: If a well-ventilated place. Keep container tightly closed. P405: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with all local, state and federal regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Ferric nitrate, nonahy	drate	7782-61-8	100%	233-899-5 (anhydrous CAS # 10421-48-4)	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Although not flammable, substance is a strong oxidizer which releases oxygen on heating, increasing the burning rate of any material with a flare-burning effect. It may cause re-ignition after a fire is extinguished.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection					
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Iron salts, soluble, as Fe	TWA: 1 mg/m ³	None	TWA: 1 mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	erties	
Appearance: Solid. Deliquescent, vale violet crystals Odor: Slight nitric acid odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 47.2°C (116°F) Boiling point: Data not available Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.68 @ 31°C Solubility(ies): Soluble in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: $Fe(NO_3)_3$ ·9H ₂ O Molecular weight: 404.00
Section 10 Stability & Reactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Do not heat or rub with organic matter or other oxidizable substance. e.g. sulfur, sulfides, phosphides, hypophosphites, etc.

Incompatible materials: Aluminum, cyanides, phosphorous, stannous chloride, thiocyanate. Oxidizable materials including sulfur, organic materials and sodium hypophosphite

Hazardous decomposition products: Nitrogen oxides.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 3,250 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory effects. STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause upper respiratory tract irritation.

Ingestion: May cause burns of the mouth, throat and stomach. Acid nature of this salt may cause corrosive damage to the gastrointestinal tract.

Skin: Contact with skin may cause severe local irritation or corrosion.

Eves: Contact with eves can cause severe irritation or corrosion.

Signs and symptoms of exposure: See Potential health effects above.

Additional information: RTECS #: NO7175000

Section 12 **Ecological Information**

Toxicity to fish: No data available

Toxicity to daphnia and other aquatic invertebrates: No data available

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14	Transport Info	ormation						
UN/NA number: Hazard class: 5.7 Exceptions: Lim	UN1466 I ited quantity equ	Shipping name: Fea Packing group: III al to or less than 5 Kg	rric nitrate	Reportable 2012 ERG	e Quantity: 1, Guide # 140	000 lbs (454 l	(g) Mar	ine pollutant: No
Section 15	Regulatory Inf	ormation						
A chemical is considered	d to be listed if the C/	AS number for the anhydrous	form is on the Inv	entory list.				
Compone	ent	TSCA	CERLO	CA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Ferric nitrate		Listed	1,000 lb:	s (454 kg)	D001	Listed	Not listed	° c
Section 16	Additional Info	ormation						
The information contain	ed herein is furnished	d without warranty of any kind.	. Employers shou	uld use this info	rmation only as a s	upplement to othe	er information gather	ed by them and must make indepe

endent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook

SDS No.: FF0190

Section 1 **Chemical Product and Company Information** CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 **IRON(II) SULFATE, HEPTAHYDRATE** Product Synonyms Ferrous Sulfate, 7-Hydrate Section 2 **Hazards Identification** Signal word: WARNING Precautionary statement: Pictograms: GHS07 P264: Wash hands thoroughly after handling. Target organs: Liver, Kidneys P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water and soap. **GHS Classification:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Acute toxicity (Category 4) Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313: If skin irritation occurs: Get medical attention. Skin irritant (Category 2) P337+P313: If eye irritation persists: Get medical attention. Eye irritant (Category 2) P362+P364: Take off contaminated clothing and wash it before reuse. GHS Label information: Hazard statement:. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. H302: Harmful if swallowed. H315: Causes skin irritation. H319: Causes serious eye irritation.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Ferrous sulfate, hepta	ahydrate	7782-63-0	100%	231-753-5		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. May cause respiratory tract irritation.

EYE CONTACT: CAUSES IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection				
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
Exposure Linnes.	Iron salts, soluble, as Fe	TWA: 1 mg/m ³	None established	TWA: 1 mg/m ³	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties		
Appearance: Solid. Blue-green crystalline powder Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 72°C (147°F) Boiling point: Decomposes Flash point: Not flammable	Evaporation rate (= 1): Data not available Flammability (solid/gas): Not applicable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): 14.6 Vapor density (Air = 1): 9.6 Relative density (Specific gravity): 1.897 Solubility(ies): 16 g/100 ml water @ 20°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: FeSO ₄ •7H ₂ O Molecular weight: 278.02

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Hygroscopic material. Efflorescent in dry air. Oxidizes in moist air forming a brown coating of basic ferric sulfate.

Incompatible materials: Strong oxidizers, alkalies, nitric acid. Aqueous solutions are oxidized slowly by air when cold, rapidly when hot. Rate of oxidation increased by addition of alkali or exposure to light.

Hazardous decomposition products: Oxides of sulfur.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 1480 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause respiratory tract irritation. Ingestion: Ingestion can produce gastrointestinal tract disturbances, severe shock, vomiting, liver and kidney damage and even death. Skin: Contact with skin may cause irritation or allergic reaction. Eves: Contact with eves is irritating and can be damaging. Signs and symptoms of exposure: See Potential health effects above. Additional information: RTECS #: NO8510000 Section 12 Ecological Information Toxicity to fish: Poecilia reticulata (fish, fresh water), LC50 = 925 mg/l/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 152 mg/l/48 hours Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: 1,000 lbs. (454 kg) Marine pollutant: No 2012 ERG Guide # Not applicable Exceptions: Not applicable Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification RCRA code DSL NDSL Component TSCA CERLCA (RQ) Ferrous sulfate, heptahydrate Listed 1,000 lbs. (454 kg) Not listed Not listed Not listed Uncontrolled product Section 16 **Additional Information**
SDS No.: HH0171

Section 1 **Chemical Product and Company Information** CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 HYDROCHLORIC ACID, 36.5-38% Product Synonyms Muriatic Acid ; Hydrogen Chloride Section 2 **Hazards Identification** Signal word: DANGER Precautionary statement(s): Pictograms: GHS05 / GHS07 P260: Do not breathe mist/vapours/spray. Target organs: Respiratory system, skin, eyes, lungs. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. **GHS Classification:** P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position Serious eye damage (Category 1) comfortable for breathing. Skin corr. (Category 1B) P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. STOT SE (Category 3) P310: Immediately call a POISON CENTER or doctor/physician. GHS Label information: Hazard statement(s): P363: Wash contaminated clothing before reuse. H314: Causes severe skin burns and eye damage. P403/233: Store in a well-ventilated place. Keep container tightly closed. H335: May cause respiratory irritation. P405: Store locked up P501: Dispose of contents/container to an approved waste disposal plant.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Water Hydrochloric acid		7732-18-5 7647-01-0	62-63.5% 36.5-38%	231-791-2 231-595-7		
Section 4	First Aid Measures					

INGESTION: Harmful if swallowed. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Causes eye burns. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Causes skin burns. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Contact with metals produce hydrogen, which is flammable and may produce explosive mixtures with air.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Neutralize spill with sodium bicarbonate or calcium hydroxide, absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from physical damage and sunlight. Protect from moisture.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Hydrogen chloride	STEL: C 2 ppm / C 2.98 mg/m ³	STEL: C 5 ppm / C 7 mg/m ³	STEL: C 5 ppm / C 7 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: Use a chemical fume hood and/or wear a NIOSH/MSHA-approved respirator.

Physical & Chemical Properties Section 9 Appearance: Clear, colorless, fuming liquid. Evaporation rate (= 1): Data not available. Partition coefficient: (n-octanol / water): Data not available. Odor: Pungent odor. Flammability (solid/gas): Data not available. Auto-ignition temperature: Data not available Odor threshold: Data not available. Explosion limits: Upper/Lower: Data not available. Decomposition temperature: Data not available. Vapor pressure (mm Hg): Approx. 25 @ 20°C (68°F) pH: <1.5 acidic, in solution. Viscosity: Data not available. Melting / Freezing point: Approx. -45°C (-49°F) Vapor density (Air = 1): Data not available. Molecular formula: HCI Boiling point: 81.11-85°C (178-185°F) Relative density (Specific gravity): Approx. 1.16 @ 20°C Molecular weight: 36.46 Flash point: Not flammable. Solubility(ies): Soluble in water. Stability & Reactivity Section 10 Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Containers may burst when heated. Avoid contact with water. Incompatible materials: Metals, bases, active metals, alkali metals, oxidizing agents, hydroxides, amines, carbonates, cyanides, sulfides, sulfites, formaldehvde Hazardous decomposition products: Hydrogen chloride gas. Section 11 **Toxicological Information** Acute toxicity: Data not available Skin corrosion/irritation: Skin-rabbit - causes burns. Serious eye damage/irritation: Eyes-rabbit - Corrosive to eyes. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP. IARC: Group 3: Not classifiable as to its carcinogenicity to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May be harmful if inhaled. Material is extrememy destructive to the tissue of the mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed. Skin: May be harmful if absorbed through skin. Causes skin burns. Eves: Causes eve burns Signs and symptoms of exposure: Burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Additional information: RTECS #: MW4025000 Section 12 **Ecological Information** Toxicity to fish: LC50 - Gambusia affinis (Mosquito fish) - 282 mg/l - 96 h (Hydrochloric acid) Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: UN1789 Shipping name: Hydrochloric acid Hazard class: 8 Packing group: || Reportable Quantity: No Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 Lt. Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification RCRA code DSL NDSL Component TSCA CERLCA (RQ) Hydrochloric acid Listed Not listed D002 Listed Not listed E; D1A

Section 16 Additional Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure.

Section 1	Chemical Product and Company Information	
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	HYDROGEN PEROXIDE, 3%	
Synonyms	Hydrogen peroxide aqueous solution, stabilized	
Section 2	Hazards Identification	
Signal word Pictograms Target organ GHS Classif Acute toxicity Eye irritation GHS Label i H303: May b H320: Cause	 t: WARNING : No symbol required ns: Respiratory and gastrointestinal systems, skin, eyes fication: y (Category 5) h (Category 2B) information: Hazard statement: be harmful if swallowed. es eye irritation. 	Precautionary statement: P264: Wash hands thoroughly after handling. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P312: Call a POISON CENTER or doctor if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Water Hydrogen peroxide Acetanilide		7732-18-5 7722-84-1 103-84-4	<94% 6% 0.05%	231-791-2 231-765-0 203-150-7	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES IRRITATION TO EYES. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Water only! Apply vast amounts for cooling and dilution.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This product is a strong oxidizer which may release oxygen and promote the combustion of flammable materials. Spontaneous combustion can occur if allowed to remain in contact with oxidizable materials. Drying of product on clothing or combustible material may cause fire.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Hydrogen peroxide	TWA: 1 ppm ; 1.4 mg/m ³ (A3)	TWA: 1 ppm ; 1.4 mg/m ³	TWA: 1 ppm ; 1.4 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties					
Appearance: Clear, Odor: Slightly punge Odor threshold: Da pH: Data not availab Melting / Freezing point: Boiling point: Approx Flash point: Data not	colorless liquid. nt odor. ta not available. le. Approximately 0°C (32°F) (water) timately 100°C (212°F) (water) ot available	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative density Solubility(ies):	tte (Water = 1): <1 solid/gas): Data not ts: Lower / Upper: I e (mm Hg): 14 (wate (Air = 1): 0.7 (water) (Specific gravity): App Complete in water.	available. Data not available r) roximately 1.0 (water	Partition c Auto-igniti Decompos Viscosity: Molecular) Molecular	oefficient: Data n ion temperature: sition temperature Data not available formula: Mixture weight: Mixture	ot available Data not available 2: Data not available. 2.
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid combustion.	Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition. Contact with combustible materials may result in spontaneous combustion. Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition. Contact with combustible materials may result in spontaneous						
Incompatible materi	als: Acids, bases, metals, metal	salts, reducing	agents, organic mater	ials, alkalies,dust and	d dirt contamir	nants, flammable s	ubstances, oxidizable materials.
Hazardous decompo	osition products: Oxygen, which	n will promote th	ne combustion of flam	mable material.			
Section 11	Toxicological Information						
Acute toxicity: Oral Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC classified: Grou OSHA: No component Reproductive toxici STOT-single exposu STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: May be h Ingestion: May be h Skin: May cause irrit Signs and symptom not available. Exercia Additional informati	Acute toxicity: Oral-rat LD50: 800 mg/kg [50% hydrogen peroxide] Skin corrosion/irritation: Data not available. Serious eye damage/irritation: Data not available. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC classified: Group 3: Not classifiable as to its carcinogenicity to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available. STOT-repeated exposure: Data not available. STOT-repeated exposure: Data not available Potential health effects: Inhalation: May be harmful if inhaled. Ingestion: May be harmful if inhaled. Ingestion: May cause irritation. Stys: May cause irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available. Exercise appropriate procedures to minimize potential hazards.						
Section 12	Ecological Information						
Toxicity to fish: Gambusia affinis (fish, fresh water), NOEC = 2.38 - 9.86 mg/l [Hydrogen peroxide] Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacia), EC50 = 7.7 mg/l/24 hours [Hydrogen peroxide] Toxicity to algae: Chlorella vulgaris (Algae), EC50 = 2.5 mg/l/growth rate [Hydrogen peroxide] Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal							
Section 13	Disposal Considerations						
These disposal guid regulations may be Section 14	delines are intended for the dis different. Dispose of in accor Transport Information	sposal of catal dance with all	og-size quantities o local, state and fed	nly. Federal regula eral regulations or o	ations may a contract with	pply to empty cor a licensed chem	ntainer. State and/or local nical disposal agency.
UN/NA number: Hazard class: No Exceptions: Not	Not applicable Shippi t applicable Packin applicable 2012 E	ng name: N g group: No RG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	ntity: No	Mari	ne pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for the	anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Hydrogen peroxide		Listed	Not listed	Not listed	Listed	Not listed	Not listed
Section 16	Additional Information						
The information contains	d horoin is furnished without warrant	of any kind 5	ployora abould use this is	formation only on a sur	plomont to ath	or information action	d by them and must make indepen

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1 Chemical Product and Company Information	
80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product IODINE-POTASSIUM IODIDE SOLUTION	
Synonyms Iodine-Iodide / Iodine Solution / Iodine / Iodine Lugol's Dilute / Gram's I	lodine Solution / Iodine 2% / Dilute Lugol's Solution
Section 2 Hazards Identification	
 Signal word: WARNING Pictograms: GHS07 / GHS09 Target organs: Thyroid, kidneys, endocrine system, skin, eyes, reproductive system, central nervous system. Image: Image: Image:	 Precautionary statement(s): P261: Avoid breathing mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302/352: IF ON SKIN: Wash with plenty of soap and water. P304/340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P362: Take off contaminated clothing and wash before reuse. P391: Collect spillage. P501: Dispose of contents/container to an approved waste disposal plant.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Nommé Chimique		# CAS	%	EINECS		
Water Potassium iodide Iodine		7732-18-5 7681-11-0 7553-56-2	95.10% 3.05% 1.85%	231-791-2 231-659-4 231-442-4		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Harmful if inhaled.

EYE CONTACT: MAY CAUSE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IN CONTACT WITH SKIN. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. Harmful in contact with skin.

Section 5 Fire Fighting Measures

Extinguishing Media: Use any media suitable for extinguishing supporting fire.

General information: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: In fire conditions, water may evaporate from this solution which may cause hazardous decomposition products to be formed as dust or fume.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling.

Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale vapors, mist or spray. Wash thoroughly after handling. Remove and wash clothing before reuse.

Storage: Store in a cool, well-ventilated area away from incompatible substances. Section 8 **Exposure Controls / Personal Protection** Chemical Name ACGIH (TLV) OSHA (PEL) NIOSH (REL) Exposure Limits: TWA: 0.01 ppm^(IFV)/ STEL: 0.1 ppm^(V) Iodine CAS # 7553-56-2 STEL: C 0.1 ppm/C 1 mg/m³ STEL: C 0.1 ppm/C 1 mg/m³ Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator. **Physical & Chemical Properties** Section 9 Appearance: Deep amber liquid. Evaporation rate (Water = 1): < 1 Partition coefficient: (n-octanol / water): Not applicable Odor: Characteristic odor Flammability (solid/gas): Not applicable. Auto-ignition temperature: Not applicable Odor threshold: Not applicable. Explosion limits: Lower / Upper: Not applicable Decomposition temperature: Data not available. Vapor pressure (mm Hg): 14 [water] pH: Data not available Viscosity: Data not available. Melting / Freezing point: ~ 0°C (~ 32°F) [water] Vapor density (Air = 1): 0.7 [water] Molecular formula: Mixture Boiling point: ~ 100°C (212°F) [water] Relative density (Specific gravity): 1.0 [water] Molecular weight: Mixture Flash point: Not flammable. Solubility(ies): Complete in water. Section 10 Stability & Reactivity Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Stable under recommended storage conditions. Excessive temperatures which cause evaporation. Incompatibilities with other materials: Metals or unsaturated organic compounds, ammonia solutions or alkaline solutions of ammonia salts. Will form explosive nitrogen iodides when reacted with gaseous ammonia. Hazardous decomposition products: Toxic iodide fumes. Section 11 **Toxicological Information** Acute toxicity: Oral-Rat LD50: 14,000 mg/kg [lodine CAS # 7553-56-2] Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Inhalation-rat 3.1 mg/m3 / 24 hour / 13 weeks - continuous [lodine CAS # 7553-56-2] Germ cell mutagenicity: Data not available Carcinogenity: Data not available IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTF OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Symptoms include cough, wheezing, and labored breathing. Symptoms may be delayed. Ingestion: Causes abdominal pain, diarrhea, nausea, and vomiting. Ingestion of levels of 2-3 grams of iodine may cause death. Skin: Contact may cause redness and pain. Eyes: Contact causes watering of the eyes, redness and pain. Signs and symptoms of exposure: Effects of short-term exposure: Lachrymator. The substance is severely irritating to the eyes and the respiratory tract, and is irritating to the skin. Inhalation of the vapor may cause asthma-like reactions. Inhalation of the vapor may cause lung edema. The effects may be delayed. Effects of long-term exposure: Repeated or prolonged contact may cause skin sensitization in rate cases. Repeated or prolonged inhalation exposure may cause asthma-like syndrome. The substance may have effects on the thyroid. Specific data not available for this mixture. Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: NN1575000 [lodine CAS # 7553-56-2] Section 12 **Ecological Information** Toxicity to fish: Very toxic to aquatic life. Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: None assigned Shipping name: Not Regulated. Hazard class: None assigned Marine pollutant: No Packing group: None assigned Reportable Quantity: No Exceptions: No Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification RCRA code DSL NDSL Component TSCA CERLCA (RQ) lodine Listed Not listed Not listed Listed Not listed E; D2A Potassium iodide Listed Not listed Not listed Listed Not listed D2A Section 16 **Additional Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure.

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 **IRON METAL, DEGREASED** Product Synonyms Iron Aggregate / Iron Filings / Iron / Iron Metal Section 2 Hazards Identification This substance or mixture has not been classified as hazardous according Supplemental information: to the Globally Harmonized System (GHS) of Classification and Labeling of Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective Chemicals. gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell. Signal word: None assigned Pictograms: None assigned Target organs: None known **GHS Classification:** None assigned GHS Label information: Hazard statement: None assigned Precautionary statement: None assigned

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Iron aggregate Contains: Iron Carbon Silicon Manganese Chromium		65997-19-5 1309-37-1 7440-44-0 7440-21-3 7439-96-5 7440-47-3	100% >90% <4.0% <3.0% <0.3-1.0% <0.0-0.2%	266-048-1		

Section 4 First Aid Measures

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam. Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. A fire hazard in the form of a fine dust dispersed in air or by chemical reaction with strong oxidizers can be an explosion hazard, especially when heated.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Particulates not otherwise specified	TWA: 15 mg/m ³ Total dust	None established	None established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties					
Appearance: Solid. Grey particles. (40-60 mesh) Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 1508.49°C (2750°F) Boiling point: Data not available Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 6.7 gm/cc Solubility(ies): Insoluble in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Mixture Molecular weight: Mixture			
Section 10 Stability & Reactivity					

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition. Acids.

Incompatible materials: Strong oxidizers, organic acids, mineral acids, water.

Hazardous decomposition products: None known

Section 11 Toxicological Information

Acute toxicity: Data not available

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Data not available

Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause respiratory tract irritation.

Ingestion: No hazard known.

Skin: Contact with skin causes irritation.

Eyes: Contact may cause mechanical irritation and possible scratches to surface of the eye.

Signs and symptoms of exposure: See Potential health effects above.

Additional information: RTECS #: Data not available

Section 12 Ecological Information

Toxicity to fish: No data available

Mobility in soil: No data available

Toxicity to daphnia and other aquatic invertebrates: No data available

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14	Transport I	Information	
UN/NA number:	Not applicab	Shinning name:	Not Regulated

Hazard class: Not Exceptions: Not	applicable	Packing group: N 2012 ERG Guide #	lot applicable Not applicable	Reportable Quantity: No		Marine pollutant: No	
Section 15	Regulatory Informa	ation					
A chemical is considered	to be listed if the CAS nu	mber for the anhydrous form	is on the Inventory list.				
Componer	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Iron aggregate		Listed	Not listed	Not listed	Listed	Not listed	Not listed
Section 16	Additional Informa	tion					

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1 Chemical Product and Company Information	
80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product LEAD NITRATE	
Synonyms Lead Dinitrate	
Section 2 Hazards Identification	
Signal word: DANGER Pictograms: GHS03 / GHS05 / GHS07 / GHS08 / GHS09 Target organs: Blood, Heart, Kidneys, Endocrine, Immune and Central nervous systems	 Precautionary statement(s): P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces No smoking. P220: Keep away from clothing and combustible materials. P221: Take any precaution to avoid mixing with combustibles. P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P378: In case of fire: Use water to extinguish. P391: Collect spillage. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with all local, state and federal regulations.

Ca Prop 65 - WARNING! This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Lead nitrate		10099-74-8	100%	233-245-9				
Section 4	First Aid Measures							

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: TOXIC IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance is a strong oxidizer which releases oxygen on heating. The oxygen will intensify any fire in the immediate surrounding. Contact with easily oxidizable, combustible substance or powdered metals may cause fire or explosion upon ignition from any source. Strong oxidizers may explode when shocked, or if exposed to heat, flame, or friction. Also may act as initiation source for dust or vapor explosions.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection							
Exposure Limitor	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Limits:	Lead & inorganic compounds, as Pb	TWA: 0.05 mg/m ³ (A3)	TWA: 0.05 mg/m ³	TWA: 0.05 mg/m ³				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. **Respiratory protection:** Lead based compounds require the use of a NIOSH type N100 filter.

Physical & Chemical Properties Section 9 Appearance: Solid. White granules. Evaporation rate (= 1): Data not available Partition coefficient: Data not available Odor: No odor. Flammability (solid/gas): Data not available. Auto-ignition temperature: Decomposes Explosion limits: Lower / Upper: Data not available Odor threshold: Data not available. Decomposition temperature: 470°C (878°F) Vapor pressure (mm Hg): Data not available pH: Data not available Viscosity: Data not available. Molecular formula: Pb(NO₃)₂ Melting / Freezing point: Data not available Vapor density (Air = 1): Data not available Boiling point: Data not available Relative density (Specific gravity): 4.53 Molecular weight: 331.20 Flash point: Data not available Solubility(ies): 50 g/100g water Section 10 Stability & Reactivity Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures and heat. Incompatible materials: Ammonium thiocyanate, powdered carbon, lead hypophosphite. Hazardous decomposition products: Lead oxides and nitrogen oxides. Section 11 **Toxicological Information** Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: (R) Reasonably anticipated to be a human carcinogen. IARC classified: Group 2A: Probably carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 2 with respiratory effects. STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Toxic if inhaled. Causes respiratory tract irritation. Ingestion: Harmful if swallowed. Skin: Harmful if absorbed through skin. Causes skin irritation. Eyes: Causes severe eye irritation. Signs and symptoms of exposure: Lead is a cumulative poison and exposure to even small amounts can raise the body's content to toxic levels. Nitrates entering the body by any route can cause headache, vomiting, dizziness, cyanosis, decreased blood pressure and possible respiratory paralysis. Acute poisoning can lead to muscle weakness, "lead line" on the gums, metallic taste, definite loss of appetite, insomnia, dizziness, high lead levels in the blood and urine with shock, coma and death in extreme cases. Additional information: RTECS #: OG2100000 Section 12 **Ecological Information** Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 1.5 mg/l - 96.0 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 0.5 - 2.0 mg/l - 48 h Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: UN1469 Shipping name: Lead nitrate Hazard class: 5.1, (6.1) Packing group: || Reportable Quantity: 10 lbs (4.54 kg) Marine pollutant: Yes 2012 ERG Guide # 141 Exceptions: Limited quantity equal to or less than 0.5 Kg Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL NDSL WHMIS Classification Component TSCA CERLCA (RQ) RCRA code Lead nitrate Listed Listed Not listed Listed Not listed C; D1A; D2A Section 16 **Additional Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Chemical Product and Company Information

Section 1

Synonyms

 80 Northwest Blvd. Nashua. NH 03063

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CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

Scientific (800) 225-3739
Product MAGNESIUM METAL, RIBBON

Section 2 Hazards Identification

Magnesium

Signal word: WARNING Pictograms: GHS02 Target organs: None known



GHS Classification: Flammable solid (Category 2)

GHS Label information: Hazard statement: H228: Flammable solid.

Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Magnesium		7439-95-4	99.8%	231-104-6				
Section 4	First Aid Measures							

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use only graphite powder, soda ash, powdered sodium chloride, or an appropriate metal-fire-extinguishing dry powder. DO NOT use water, carbon dioxide, or foam!

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear.

Specific Hazards: When heated in air to a temperature near its melting point, magnesium may ignite and burn. Dangerous in the form of dust or flakes and when exposed to flame or by violent chemical reaction with oxidizing agents. Magnesium may react with moisture or acids to evolve hydrogen gas, which is a highly dangerous fire or explosion hazard.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Using non-sparking tools, sweep up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources. Keep away from water and moisture.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Magnesium	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties							
Appearance: Solid Odor: No odor. Odor threshold: D pH: Data not availa Melting / Freezing Boiling point: 1110 Flash point: 636°C	. Silvery gray, metal ribbon ata not available. ble. (1203.8°F) °C (2030°F) (1205.8°F) (1175°F) 5	Evaporation ra Flammability (s Explosion limit /apor pressure /apor density Relative density Solubility(ies):	tition rate (= 1): Data not available Partii bility (solid/gas): Data not available. Auto on limits: Lower / Upper: Data not available Decc ressure (mm Hg): 1 mm @ 621°C Visc. ensity (Air = 1): Data not available Mole density (Specific gravity): 1.74 @ 20°C Mole			Partition coefficient: Data not available Auto-ignition temperature: 510°C (950°F) Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Mg Molecular weight: 24.31			
Section 10	Stability & Reactivity	·····							
Chemical stability: Conditions to avoi Incompatible mate Hazardous decom	Stable d: Excessive temperatures, heat, s rials: Magnesium will react with w position products: Hydrogen.	Hazardo sparks, open fla ater and acids t	us polymerization: \ ame and other sources to release hydrogen. A	Will not occur. • of ignition. Also hazardous with	chlorine, bron	nine, iodine and oxi	dizing agents.		
Section 11	Toxicological Information								
Acute toxicity: Da Skin corrosion/irri Serious eye dama Respiratory or skit Germ cell mutager Carcinogenity: Da NTP: No compone IARC: No compone OSHA: No compone OSHA: No compone STOT-single expos STOT-repeated exp Aspiration hazard: Potential health ef Inhalation: Inhalatic Ingestion: Ingestion Skin: Particles imb Eyes: Contact with Signs and sympto chills, nausea, vomi	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause cough, sore throat, shortness of breath. Ingestion: Ingestion causes burning sensation in the mouth and may cause abdominal pain and diarrhea. Skin: Particles imbedded in the skin may cause eruptions. Molten magnesium may cause serious skin burns. Eyes: Contact with eyes may cause irritation and corneal scratches. Avoid direct viewing of magnesium fires as eye injury may result, use fire glasses. Signs and symptoms of exposure: Exposure to magnesium oxide fume subsequent to burning can result in metal fume fever. The temporary symptoms can include fever, chills, nessea vomiting and muscular pain. Onset of symptoms can sub-le prosure - Exposure to magnesium oxide fume subsequent to burning can result in metal fume fever. The temporary symptoms can include fever, chills, nuesea vomiting and muscular pain. Onset of symptoms can cause for exposure.								
Section 12	Ecological Information								
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.									
Section 13	Disposal Considerations								
I hese disposal guregulations may b	These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG)								
UN/NA number: UN1869 Shipping name: Magnesium Hazard class: 4.1 Packing group: III Reportable Quantity: No Exceptions: Limited quantity equal to or less than 5 Kg 2012 ERG Guide # 138 138									
Section 15	Regulatory Information	ophydrous form	is on the Inventory list						
A chemical is consider	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification		
Magnesium		Listed	Not listed	D001	Listed	Not listed	B 4 ; B6		

Section 16 **Additional Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	MAGNESIUM CHLORIDE, HEXAHYDRATE	
Synonyms	Magnesium Chloride, 6-Hydrate	
Section 2	Hazards Identification	
This substa to the Globa Chemicals.	nnce or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of	Precautionary statement: P312: Call a POISON CENTER or doctor if you feel unwell.
Signal word Pictograms Target orga	 WARNING No symbol required ns: Central nervous system, Kidneys, Gastrointestinal tract 	
GHS Classi Acute toxicit	fication: y, oral (Category 5)	
GHS Label H303: May b	information: Hazard statement: be harmful if swallowed.	

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Magnesium chloride,	hexahydrate	7791-18-6	100%	232-094-6 anhydrous	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Avoid high humidity and moisture.

Section 8	Exposure Controls / Personal Protection							
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Limits:	Magnesium chloride	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties						
Appearance:Solid.Colorless, flakes or crystalsEvaporation rate (=1):Data not availablePartition coefficient:Odor:No odor.Flammability (solid/gas):Data not availableAuto-ignition tempeOdor threshold:Data not availableExplosion limits:Lower / Upper:Not availableDecomposition tempepH:7.0 (aqueous solution)Vapor pressure (mm Hg):Data not availableViscosity:Data notMelting / Freezing point:118°C (244°F)Vapor density (Air = 1):Data not availableMolecular formula:Boiling point:Non flammableSolubility(ies):167 g/100 ml water @ 20°CMolecular weight:						befficient: Data no on temperature: I ition temperature Data not available formula: MgCl ₂ -6 weight: 203.31	ot available Data not available : Data not available H ₂ O	
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid	Stable : Excessive temperatures and h	Hazardo eat. Avoid high l	us polymerization: Notes that the second sec	Will not occur.				
Incompatible materi	als: Strong oxidizers.							
Hazardous decompo	osition products: Hydrogen chl	oride gas, magn	esium oxide.					
Section 11	Toxicological Information							
Acute toxicity: Oral Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component Reproductive toxici STOT-single expose STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: Inhalation Ingestion: Ingestion Skin: Contact may ca Eyes: Contact may ca Signs and symptom	Acute toxicity: Oral-rat LD50: 2800 mg/kg (anhydrous) Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Cata not available STOT-single exposure: State not available STOT-single exposure: Data not available STOT-single exposure: State not available STOT-single exposure: State not available STOT-single exposure: State not available ST							
Section 12	Ecological Information							
Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 16,500 mg/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 3,190 mg/L/24 hours Toxicity to algae: Scenedesmus subspicatus (Algae), EC50 = 2,200 mg/L/72 hours Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental bazard cannot be excluded in the event of upprofessional bandling or disposal								
Section 13	Disposal Considerations							
These disposal guid regulations may be	delines are intended for the di different. Dispose of in acco	sposal of catal dance with all	og-size quantities o local, state and fed	only. Federal regulations or	ations may ap contract with	pply to empty cor a licensed chem	ntainer. State and/or local nical disposal agency.	
Section 14	Transport Information (US	DOT / CANAD	A TDG)					
UN/NA number:	Not applicable Shipp	ng name: N	ot Regulated	Demostale la Ora				
Exceptions: Not	Hazard class: Not applicablePacking group: Not applicableReportable Quantity: NoMarine pollutant: NoExceptions: Not applicable2012 ERG Guide # Not applicableNot applicableMarine pollutant: No							
Section 15	Regulatory Information							
A chemical is considered	to be listed if the CAS number for th	e anhydrous form	is on the Inventory list.		ופט	NDEL		
Compone Magnopium chlorida	hovobudroto	Notlisted	Not listed	Not listed	Notlisted	Notlistad		
waynesium chionde,		NOL IISLEO		NUL IISLEU	NUL IISLEU	NOL IISLEU		

Section 16 Additional Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1 **Chemical Product and Company Information** Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. Nashua, NH 03063 Not for drug, food or household use. (800) 225-3739 MAGNESIUM NITRATE, HEXAHYDRATE Product Synonyms Magnesium Nitrate, 6-Hydrate Section 2 **Hazards Identification** Signal word: WARNING Precautionary statement: Pictograms: GHS03 P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Target organs: None known P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P280: Wear protective gloves/protective clothing/eye protection/face protection. P370+P378: In case of fire: Use water. Do not use dry chemicals or foams to extinguish. GHS Classification: P501: Dispose of contents/container to a licensed chemical disposal agency in Oxidizing solid (Category 3) accordance with local/regional/national regulations. GHS Label information: Hazard statement: H272: May intensify fire; oxidizer.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Magnesium nitrate, he	exahydrate	13446-18-9	100%	233-826-7 [anhydrous]	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Pro	Exposure Controls / Personal Protection						
	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Linnes.	Magnesium nitrate	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator

appiorea reepiiaten							
Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: No odor Odor threshold: Da pH: Data not availab Melting / Freezing p Boiling point: Deco Flash point: Data n	White, deliquescent crystals ta not available le oint: 89°C (192°F) mposes ot available	Evaporation ra Flammability (Explosion lim Vapor pressur Vapor density Relative densi Solubility(ies)	ate (= 1): Data not a (solid/gas): Data not a its: Lower / Upper: D re (mm Hg): Data not (Air = 1): Data not av ity (Specific gravity): : Soluble in water	vailable available bata not available available ailable 1.46	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data no ion temperature: bition temperature Data not available formula: Mg(NO ₃ weight: 256.41	ot available Data not available : 330°C (626°F)) ₂ •6H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable Excessive temperatures and I	Hazardo	ous polymerization:	Will not occur.			
Incompatible mater	ials: Reducing agents, oxidizer	s, organic and co	ombustible materials.				
Hazardous decomp	osition products: Nitric acid fu	imes and someti	mes nitrogen tetroxide	are reported.			
Section 11	Toxicological Information						
Acute toxicity: Ora Skin corrosion/irrit Serious eye damag Respiratory or skin Germ cell mutagen Carcinogenity: Dat NTP: No component IARC: No component IARC: No component Ca Prop 65: This pro Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: May cau Ingestion: Ingestion of Skin: Can cause mi Signs and symptom nitrite. Exercise app Additional informat	I-rat LD50: 5440 mg/kg ation: Data not available e/irritation: Data not available sensitization: Data not available icity: Data not available a not available of this product present at levels t of this product present at level nt of this product present at level duct does not contain any chem ity: Data not available osure: Data not available Data not available ects: se mild respiratory tract irritation of large doses can cause abdomin d irritation. ins of exposure: Under some c ropriate procedures to minimize ion: RTECS #: OM3756000	greater than or s greater than or ls greater than or icals known to th . Symptoms ma nal pain, cyanosis ircumstances me potential hazard	equal to 0.1% is identif equal to 0.1% is ident or equal to 0.1% is ident ne State of California to y include coughing and s (blue lips, fingernails a ethemoglobinemia occu is.	ied as a known or ar fied as probable, po tified as a carcinoge o cause cancer or rep d shortness of breath nd skin), confusion, c urs in individuals who	nticipated carc ssible or confi n or potential productive tox	inogen by NTP. rmed human carcin carcinogen by OSH icity. zziness, headache, f s converted by bac	ogen by IARC. IA. nausea, and unconsciousness. teria in the stomach to the
Section 12	Ecological Information						
Toxicity to fish: No Toxicity to daphnia Toxicity to algae: N Persistence and de Mobility in soil: No Other adverse effec	data available and other aquatic invertebrate o data available gradability: No data available data available ets: An environmental hazard ca	es: No data avai Bioaccum PBT and v unnot be exclude	lable ulative potential: No PvB assessment: No d in the event of unpro	data available) data available fessional handling o	r disposal.		
Section 13	Disposal Considerations						
These disposal gui regulations may be	delines are intended for the or different. Dispose of in account	disposal of cata ordance with al	log-size quantities o l local, state and fed	nly. Federal regul eral regulations or	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Internation (U)						
UN/NA number: Hazard class: 5. Exceptions: Lim	I Shipping Packing g ited quantity equal to or less	name: Magn roup: III than 5 Kg	esium nitrate Reporta 2012 ER	ble Quantity: No G Guide # 140		Mari	ne pollutant: No
Section 15	Regulatory Information						
A chemical is considere	d to be listed if the CAS number for t	he anhydrous form	n is on the Inventory list.		Del	NDO	
Lompone Mognosium sitest	enter en enter enter en enter ente	ISCA		Not lists d	USL	NUSL	
Magnesium nitrate, a	innyarous	Listed	Not listed	Not listed	Listed	Not listed	° (ک
Section 16	Additional Information						

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	MAGNESIUM OXIDE, LIGHT POWDER	
Synonyms	Magnesia / Calcined Magnesia / Calcined Brucite	
Section 2	Hazards Identification	
This substant to the Globall Chemicals. Signal word: Pictograms: Target organs GHS Classific GHS Label int Precautionary	ce or mixture has not been classified as hazardous according by Harmonized System (GHS) of Classification and Labeling of Not classified s: None known cation: Not classified formation: Hazard statement: Not classified y statement: Not classified	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 Composition / Information o	n Ingredients			
Chemical Name	CAS #	%	EINECS	
Magnesium oxide	1309-48-4	100%	215-171-9	
Section 4 First Aid Measures				
Section 4 First Ald Weasures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection		
	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linnes.	Magnesium oxide	TWA: 10 I mg/m ³ (A4)	TWA: 15 mg/m ³ Total particulate	Not established

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Pr	operties	
Appearance: Solid, white powder Odor: No odor Odor threshold: Data not available pH: Data not available Melting / Freezing point: 2800°C (5072°F) Boiling point: 3600°C (6512°F) Flash point: Not flammable	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): Data not available Relative density (Specific gravity): 3.65-3.75 Solubility(ies): 0.4 g/100 ml in water @ 20°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: MgO Molecular weight: 40.30
Section 10 Stability & Reactivity		
Chemical stability: Stable Conditions to avoid: Absorbs carbon dioxide an Incompatible materials: Reacts violently with sta Hazardous decomposition products: Magnesia	Hazardous polymerization: Will not occur. d moisture from the air. ong acids. m oxides.	
Section 11 Toxicological Information	n	
Acute toxicity: Data not available Skin corrosion/irritation: Human - slight irritant Serious eye damage/irritation: Human - slight i Respiratory or skin sensitization: Data not ava Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at lev IARC: No component of this product present at lev OSHA: No component of this product present at lev STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause coughing. Ingestion: Ingestion may cause irritation. Eyes: Contact with skin may cause irritation. Signs and symptoms of exposure: To the best not available. Exercise appropriate procedures to Additional information: RTECS #: OM3850000	ritant lable els greater than or equal to 0.1% is identified as a known or ant rels greater than or equal to 0.1% is identified as probable, pos vels greater than or equal to 0.1% is identified as a carcinogen of our knowledge the chemical, physical and toxicological prop minimize potential hazards.	ticipated carcinogen by NTP. sible or confirmed human carcinogen by IARC. or potential carcinogen by OSHA.
Section 12 Ecological Information		
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebric Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard Section 13 Disposal Consideration	ates: No data available e Bioaccumulative potential: No data available PBT and vPvB assessment: No data available cannot be excluded in the event of unprofessional handling or s	disposal.
Disposal consideration	-	

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14 11a	insport information	(03 DOT / CANAL	A IDG)					
UN/NA number: Not a Hazard class: Not app Exceptions: Not appli	applicable Sholicable Pa dicable 20	hipping name: Notes No	ot Regulated ot applicable Not applicable	Reportable Qua	antity: No	Mari	ne pollutant: No	
Section 15 Reg	gulatory Information	I						
A chemical is considered to be	listed if the CAS number	for the anhydrous form	is on the Inventory list.					
Component		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Magnesium oxide		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product	
Section 16 Add	ditional Information							l
The information contained here	ein is furnished without wa	arranty of any kind. Em	ployers should use this in	nformation only as a su	pplement to othe	r information gathere	d by them and must make indepen	-

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	MAGNESIUM SULFATE, HEPTAHYDRATE	
Synonyms	Epsom Salts	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label Precautiona	Ince or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of I: None : No symbol required ns: None known fication: Not classified information: Hazard statement: Not classified ary statement: Not classified	Supplementary information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 0	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Magnesium sulfate		10034-99-8	100%	231-298-2 (anhydrous)	
Section 4 F	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Page E2 of E2

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	Exposure Controls / Personal Protection						
	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Linnis.	Magnesium sulfate	None established	None established	None established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid, Y Odor: No odor. Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: Data no Flash point: Data no	White crystalline powder a not available. e. int: Data not available not available t available	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density (Relative densit Solubility(ies):	te (= 1): Data not a solid/gas): Data not a s: Lower / Upper: Data e (mm Hg): Data not Air = 1): Data not av y (Specific gravity): Appreciable in water	vailable available. Data not available available ailable 2.7	Partition co Auto-ignitio Decomposi Viscosity: Molecular f Molecular v	befficient: Data no on temperature: I ition temperature: Data not available. ormula: MgSO4•7 veight: 246.48	ot available Data not available : Data not available 7H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable Excessive temperatures and h	Hazardo eat. Protect fron	us polymerization: Non moisture.	Will not occur.			
Incompatible materi	als: None known.						
Hazardous decompo	osition products: Sulfur oxides						
Section 11	Toxicological Information						
Active toxicity: Data Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component IARC: No component OSHA: No component STOT-single exposu STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: May caus Ingestion: Ingestion I Skin: Contact with sk Eyes: Contact with sk	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. CSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May cause respiratory irritation. Ingestion: Ingestion may cause invitation. Skin: Contact with skin may cause irritation. Eyes: Contact with eyes may cause irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available. Exercise appropriate procedures to minimize potential hazards.						
Section 12	Ecological Information						
Toxicity to fish: Gar Toxicity to daphnia a Toxicity to algae: Sc Persistence and deg Mobility in soil: No Other adverse effect	nbusia affinis (fish, fresh water), and other aquatic invertebrate enedesmus subspicatus (Algae) radability: No data available data available s: An environmental hazard ca	LC50: 15,500 m s: Daphnia magr , EC50: 2,700 m Bioaccumu PBT and vP nnot be excluded	g/L/24 hours na (Crustacea), EC50 ng/L/ 72 hours Ilative potential: No VB assessment: No i in the event of unpro	: 1,700 mg/L/24 hours data available) data available fessional handling or	s disposal.		
Section 13	Disposal Considerations						
These disposal guid regulations may be	felines are intended for the d different. Dispose of in acco	isposal of catal rdance with all	og-size quantities o local, state and fed	nly. Federal regula eral regulations or o	ations may ap contract with	oply to empty cor a licensed chem	itainer. State and/or local ical disposal agency.
Section 14	Transport Information (US	DOT / CANAD	A TDG)	-			
UN/NA number: Hazard class: No Exceptions: Not	Not applicableShippt applicablePackiapplicable2012	ing name: N ng group: No ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	ntity: No	Mari	ne pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for the	e anhydrous form	is on the Inventory list.	RCRA codo	ופח	NDSI	WHMIS Classification
Magnesium sulfate		Listed	Not listed	Not listed	Listed	Not listed	
		2.5100			2.0.04		
Section 16	Additional Information						
The information containe	d herein is furnished without warran	ty of any kind Emi	plovers should use this in	nformation only as a sur	plement to othe	r information gathere	d by them and must make indepen-

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1 **Chemical Product and Company Information** Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd Nashua, NH 03063 Not for drug, food or household use. (800) 225-3739 MANGANESE(IV) DIOXIDE, 99% Product Synonyms Manganese Dioxide / Manganese Peroxide / Manganese(IV) Oxide Section 2 Hazards Identification Signal word: WARNING Precautionary statement: Pictograms: GHS07 P261: Avoid breathing dust. Target organs: Respiratory system, Central nervous system P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or GHS Classification: doctor if you feel unwell. Acute toxicity, oral (Category 4) P501: Dispose of contents/container to a licensed chemical disposal agency in Acute toxicity, inhalation (Category 4) accordance with local/regional/national regulations. GHS Label information. Hazard statement: H302⁻ Harmful if swallowed H332: Harmful if inhaled.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Manganese dioxide		1313-13-9	>98%	215-202-6	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Although not flammable, substance is a strong oxidizer which releases oxygen on heating, increasing the burning rate of any material with a flare-burning effect. It may cause re-ignition after a fire is extinguished.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Manganese, fume, as Mn	TWA: 0.2 mg/m ³	STEL: C 5 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance:Solid. Black crystalline powder.Evaporation rate (=1): Data not availablePartition coefficient: Data not availableOdor:No odor.Flammability (solid/gas): Data not available.Partition coefficient: Data not available.Odor threshold:Data not available.Explosion limits: Lower / Upper: Data not availableAuto-ignition temperature: Data not availablepH:Data not available.Vapor pressure (mm Hg): Data not availableDecomposition temperature: Data not availableMelting / Freezing point:Data not availableVapor density (Air = 1): Data not availableMolecular formula: MnO2Boiling point:Data not availableSolubility(ies): Insoluble in water.Molecular weight: 86.94					ot available Data not available : Data not available. :		
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoi	Stable d: Do not heat or rub with organ	Hazard ic matter or othe	ous polymerization: r oxidizable substance	Will not occur. . e.g. sulfur, sulfides,	, phosphides,	hypophosphites, et	с.
Incompatible mate	rials: Chlorates, strong oxidizer	s, organic mater	ials, combustible mater	ials, aluminum powo	ler and sulfur.		
Hazardous decom	position products: Heating abo	ve 535°C (995°l	F) will produce oxygen	and manganese oxid	des and/or fur	nes.	
Section 11	Toxicological Information						
Actue toxicity: Oral-fat LDS0: 5000 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Chronic excess inhalational exposures may lead to pulmonary inflammation and subsequent reactive airway disease. Metal fume fever has been reported with manganese inhalation. Ingestion: May be harmful if ingested. Skin: Prolonged or repeated contact with dust may irritate skin. Eyes: Contact with eyes may cause irritation. Signs and symptoms of exposure: Toxicity from acute ingestion or acute inhalation of manganese is rare. Chronic inhalation over many years, usually from occupational exposure, may lead to manganese toxicity. Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: No Toxicity to daphnia Toxicity to algae: N Persistence and do Mobility in soil: No Other adverse effe	o data available a and other aquatic invertebrat Vo data available egradability: No data available o data available cts: An environmental hazard c: Disposal Considerations	es: No data avai Bioaccum PBT and v annot be exclude	lable ulative potential: No /PvB assessment: No ed in the event of unpro	data available o data available fessional handling o	r disposal.		
These disposal or	idelines are intended for the	disposal of cat	alog-size quantities o	nly Federal regul	ations may a	apply to empty co	ntainer State and/or local
regulations may b	e different. Dispose of in acc	ordance with a	ll local, state and fed	eral regulations or	contract wit	h a licensed chen	nical disposal agency.
Section 14	Transport Information (U	S DOT / CANA	DA TDG)				
UN/NA number:	UN1479 Shipping	name: Oxidiz	zing solid, n.o.s., (M	anganese dioxide)		
Hazard class: 5	.1 Packing g	roup: III	Reporta	ble Quantity: No)	Mar	ine pollutant: No
Exceptions: Lin	nited quantity equal to or less	s than 5 Kg	2012 ER	G Guide # 140			
Section 15	Regulatory Information	the anhydrous form	n is on the Inventory list				
Compon	ient	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Manganese dioxide		Listed	Not listed	Not listed	Listed	Not listed	(C; D2B)
Section 16	Additional Information						
The information contai	ned herein is furnished without warra	nty of any kind E	mplovers should use this i	nformation only as a su	innlement to oth	per information gather	ed by them and must make indeper

dent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 MANGANESE(II) SULFATE, MONOHYDRATE Product Synonyms Manganous Sulfate / Manganese Sulfate Section 2 **Hazards Identification** Signal word: WARNING Precautionary statement: Pictograms: GHS08 / GHS09 P260: Do not breathe dust. Target organs: Central nervous system, Liver, Kidneys P273: Avoid release to the environment. P314: Get medical attention if you feel unwell. P391: Collect spillage. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. **GHS Classification:** STOT-RE (Category 2) Aquatic toxicity, chronic (Category 2) GHS Label information: Hazard statement: H373: May cause damage to organs through prolonged or repeated exposure. H411: Toxic to aquatic life with long lasting effects.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Manganese sulfate		10034-96-5	100%	232-089-9		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use extinguishing agent suitable for type of surrounding fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Linnes.	Manganese sulfate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Appearance: Solid. F Odor: No odor	Physical & Chamical Pro					
Appearance: Solid. I Odor: No odor	Filysical & Chemical Fil	perties				
Odor threshold: Da pH: Data not availat Melting / Freezing p Boiling point: Data Flash point: Data n	Pale red, effluorescent powder ata not available ble point: 57-117°C (134-242°F) not available ot available	Evaporation rate (=1): Data not Flammability (solid/gas): Data not Explosion limits: Lower / Upper: Vapor pressure (mm Hg): Data not Vapor density (Air = 1): Data not a Relative density (Specific gravity): Solubility(ies): Soluble in water	available available Data not available t available vailable : 2.95	Partition cod Auto-ignitio Decomposit Viscosity: D Molecular fo Molecular w	efficient: Data no n temperature: D ion temperature: Data not available rmula: MnSO ₄ +F eight: 169.01	ot available Data not available E Data not available H ₂ O
Section 10	Stability & Reactivity					
Chemical stability: Conditions to avoid	Stable d: Excessive temperatures.	Hazardous polymerization:	Will not occur.			
Incompatible mater	rials: Strong reducing agents.					
Hazardous decomp	oosition products: Sulfur oxid	es.				
Section 11	Toxicological Information	1				
Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: May cause damage to organs through prolonged or repeated exposure. Aspiration hazard: Data not available Potential health effects: Inhalation: May be harmful if inhaled. May cause espiratory tract irritation. Ingestion: May be harmful if swallowed. Skin: May be harmful if absorbed through skin. May cause skin irritation. Eyes: May cause eye irritation. Signs and symptoms of exposure: Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High includence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds. Prolonged or repeated inhalation may cause pneumonia. Exercise appropriate procedures to minimize potential hazards.						
dust or fume of som Additional informa	tion: RTECS #: OP0893500	. <u>.</u>	e pneumonia. Exercis	se appropriate p	procedures to mini	workers exposed to the imize potential hazards.
Additional informa	tion: RTECS #: OP0893500 Ecological Information		e pneumonia. Exercis	se appropriate p	procedures to mini	workers exposed to the imize potential hazards.
Additional informa Additional informa Section 12 Toxicity to fish: No Toxicity to daphnia Toxicity to algae: N Persistence and de Mobility in soil: No Other adverse effect Section 13	Ecological Information and other aquatic invertebra o data available gradability: No data available data available gradability: No data available tes: An environmental hazard o Disposal Considerations	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No cannot be excluded in the event of unpr	e pneumonia. Exercis o data available lo data available ofessional handling or	se appropriate p	procedures to mini	workers exposed to the imize potential hazards.
Additional informa Additional informa Section 12 Toxicity to fish: No Toxicity to daphnia Toxicity to daphnia Toxicity to dagae: N Persistence and de Mobility in soil: No Other adverse effect Section 13 These disposal gur regulations may be	Ecological Information and other aquatic invertebra o data available gradability: No data available gradability: No data available cts: An environmental hazard o Disposal Considerations idelines are intended for the e different. Dispose of in acc	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No cannot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and fee	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or	e appropriate p disposal. ations may ap contract with a	oly to empty con a licensed chemi	workers exposed to the imize potential hazards. ntainer. State and/or local ical disposal agency.
Additional informa Additional informa Section 12 Toxicity to fish: Not Toxicity to daphnia Toxicity to algae: N Persistence and de Mobility in soil: Not Other adverse effect Section 13 These disposal gur regulations may be Section 14	Ecological Information and other aquatic invertebra o data available and other aquatic invertebra o data available gradability: No data available data available cts: An environmental hazard o Disposal Considerations idelines are intended for the different. Dispose of in acc Transport Information (I	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No cannot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and fee IS DOT / CANADA TDG)	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or	disposal. ations may ap	ply to empty con	workers exposed to the imize potential hazards. trainer. State and/or local ical disposal agency.
Additional informa Additional informa Section 12 Toxicity to fish: Not Toxicity to daphnia Toxicity to daphnia Toxicity to dapae: N Persistence and de Mobility in soil: Not Other adverse effect Section 13 These disposal guregulations may be Section 14 UN/NA number: Hazard class: Not	Ecological Information edata available and other aquatic invertebra o data available gradability: No data available cdata available gradability: No data available cdata available cdata available cdata available cdata available cts: An environmental hazard of Disposal Considerations idelines are intended for the adifferent. Dispose of in act Transport Information (U Not applicable Pac papplicable Pac t applicable 2012	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No annot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and fea IS DOT / CANADA TDG) oping name: Not Regulated king group: Not applicable 2 ERG Guide # Not applicable	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or Reportable Qua	disposal. ations may ap contract with a ntity: No	oly to empty con a licensed chemi	workers exposed to the imize potential hazards. Itainer. State and/or local ical disposal agency.
Additional informa Additional informa Section 12 Toxicity to fish: Not Toxicity to daphnia Toxicity to daphnia Toxicity to dapae: N Persistence and de Mobility in soil: Not Other adverse effect Section 13 These disposal guregulations may be Section 14 UN/NA number: Hazard class: Not Exceptions: Not Section 15	Ecological Information edata available and other aquatic invertebra o data available gradability: No data available ctata available cts: An environmental hazard of Disposal Considerations idelines are intended for the e different. Dispose of in acc Transport Information (U Not applicable Pac paplicable Pac tapplicable 2012 Regulatory Information 1000000000000000000000000000000000000	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No annot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and fea IS DOT / CANADA TDG) uping name: Not Regulated king group: Not applicable 2 ERG Guide # Not applicable	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or Reportable Qua	disposal. ations may app contract with a ntity: No	oly to empty con a licensed chemi	workers exposed to the imize potential hazards. Itainer. State and/or local ical disposal agency.
Additional informa Additional informa Section 12 Toxicity to fish: Not Toxicity to daphnia Toxicity to daphnia Toxicity to dapae: N Persistence and de Mobility in soil: Not Other adverse effect Section 13 These disposal guregulations may be Section 14 UN/NA number: Hazard class: Not Section 15 A chemical is considered	eminganese compounds. Profition: RTECS #: OP0893500 Ecological Information o data available and other aquatic invertebra o data available gradability: No data available gradability: No data available cts: Disposal Considerations idelines are intended for the e different. Disposal Considerations idelines are intended for the e different. Dispose of in acc Transport Information (U Not applicable Ship ot applicable Pac t applicable 2012 Regulatory Information dt ob listed if the CAS number for	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No annot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and feo IS DOT / CANADA TDG) uping name: Not Regulated king group: Not applicable 2 ERG Guide # Not applicable the anhydrous form is on the Inventory list.	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or Reportable Qua	disposal. ations may app contract with a ntity: No	oly to empty con a licensed chemi	workers exposed to the imize potential hazards. ntainer. State and/or local ical disposal agency. ne pollutant: No
Additional informa Additional informa Section 12 Toxicity to fish: No Toxicity to daphnia Toxicity to daphnia Toxicity to dagae: N Persistence and de Mobility in soil: No Other adverse effer Section 13 These disposal gu regulations may be Section 14 UN/NA number: Hazard class: No Section 15 A chemical is considere Compone	Ecological Information and other aquatic invertebra o data available gradability: No data available o data available gradability: No data available o data available cts: An environmental hazard of Disposal Considerations idelines are intended for the e different. Dispose of in acc Transport Information (I Not applicable Pac t applicable Pac t applicable 2012 Regulatory Information of to be listed if the CAS number for ent	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No cannot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and fee IS DOT / CANADA TDG) oping name: Not Regulated king group: Not applicable PERG Guide # Not applicable the anhydrous form is on the Inventory list. TSCA CERLCA (RQ) Listed Not listed	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or Reportable Qua RCRA code Not listed	disposal. ations may ap contract with a ntity: No DSL Listed	oly to empty con a licensed chemi Marin NDSL Not listed	workers exposed to the imize potential hazards. htainer. State and/or local ical disposal agency. ne pollutant: No WHMIS Classification Not listed
Additional informa Additional informa Section 12 Toxicity to fish: No Toxicity to daphnia Toxicity to daphnia Toxicity to dagae: N Persistence and de Mobility in soil: No Other adverse effer Section 13 These disposal gu regulations may be Section 14 UN/NA number: Hazard class: No Section 15 A chemical is considere Compone Manganese sulfate	Ecological Information data available and other aquatic invertebra o data available gradability: No data available data available cts: An environmental hazard of Disposal Considerations idelines are intended for the different. Dispose of in acc Transport Information (U Not applicable Pac t applicable 2012 Regulatory Information di to be listed if the CAS number for ent	tes: No data available Bioaccumulative potential: No PBT and vPvB assessment: No annot be excluded in the event of unpr disposal of catalog-size quantities cordance with all local, state and fea IS DOT / CANADA TDG) oping name: Not Regulated king group: Not applicable PERG Guide # Not applicable the anhydrous form is on the Inventory list. <u>TSCA</u> <u>CERLCA (RQ)</u> Listed Not listed	e pneumonia. Exercis o data available lo data available ofessional handling or only. Federal regula deral regulations or Reportable Qua RCRA code Not listed	disposal. ations may ap contract with a ntity: No DSL Listed	oly to empty con a licensed chemi Marin NDSL Not listed	workers exposed to the imize potential hazards. Intainer. State and/or local ical disposal agency. Ine pollutant: No WHMIS Classification Not listed

The information contained nerven is turnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1 Chemical Product and Company Information	n Page E1 of E2
80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product MERCURY(I) NITRATE, DIHYDRATE	
Synonyms Mercury Protonitrate / Mercurous Nitrate, Dihydrate	
Section 2 Hazards Identification	
Signal word: DANGER Pictograms: GHS06 / GHS08 / GHS09 Target organs: Kidneys, Central nervous system, Gastrointestinal tract, B	Precautionary statement: P260: Do not breathe dust. P262: Do not get in eyes, on skin, or on clothing. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P284: Wear respiratory protection. P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor. P330: Rinse mouth. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P310: Immediately call a POISON CENTER or doctor. P361+P364: Take off immediately all contaminated clothing and wash it before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P391: Collect spillage. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Mercurous nitrate, dih	ıydrate	14836-60-3	100%	233-886-4 (CAS # 10415-75-5)	
Section 4	First Aid Measures				

INGESTION: FATAL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: FATAL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CONTACT MAY CAUSE SEVERE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: FATAL IN CONTACT WITH SKIN. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources. Protect from light.

Section 8	Exposure Controls / Personal Protection					
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
	Mercury, elemental and inorganic compounds, as Hg	TWA: 0.025 mg/m ³ (A4)	TWA: 0.1 mg/m ³	TWA: 0.05 mg/m ³ (vapor)		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

approtoa toopilaton							
Section 9	Physical & Chemical Pr	operties					
Appearance: Solid. (Odor: Slight nitric aci Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: Decor Flash point: Data not	Colorless to slight yellow id odor a not available e pint: 70°C (158°F) nposes t available	Evaporation ra Flammability (Explosion limi Vapor pressur Vapor density Relative density Solubility(ies):	tte (=1): Data not a solid/gas): Data not ts: Lower / Upper: I e (mm Hg): Data not (Air = 1): 1.9 (Specific gravity): 4.78 Soluble in water	ivailable available Data not available available	Partition cd Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data n on temperature: ition temperature Data not available formula: Hg ₂ (NO weight: 561.22	ot available Data not available e: Data not available g ₃) ₂ •2H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable :Excessive temperatures, in	Hazardo compatibles, and lig	ous polymerization:	Will not occur.			
Incompatible materi	als: Strong oxidizers, reduci	ng agents, organic	matter, nonmetals (e.g	g. carbon, phosphore	ous, antimony,	arsenic, boron, sul	lfur, selenium).
Hazardous decompo	osition products: Nitrogen	oxides, mercury/me	rcury oxides.				
Section 11	Toxicological Information	on					
Acute toxicity: Oral Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC classified: Grou OSHA: No componer Ca Prop 65: This proc Reproductive toxicii STOT-single exposu STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: Fatal if fun nervous system effect Ingestion: Fatal if sw central nervous syste Skin: Fatal in contact moist. May cause dis Eyes: Contact may c Signs and symptom	Acute toxicity: Oral-rat LD50: 170 mg/kg; Dermal-rabbit LD50: 2330 mg/kg [CAS No. 10415-75-5] Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC classified: Group 3: Not classifiable as to its carcinogenicity to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Car Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Fatal if inhaled. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath, and delayed lung edema. May cause central nervous system effects. Inhalation: Fatal if swallowed. May cause severe digestive tract irritation with abdominal pain, nausea, vomiting, and diarrhea. May cause liver and kidney damage. May cause central nervous system effects. Skin: Fatal if swallowed. May cause severe digestive tract irritation with abdominal pain, nausea, vomiting, and diarrhea. May cause liver and kidney damage. May cause central nervous system effects. Skin: Fatal if swallowed. May cause severe and pain. May cause sinsitization. May cause severe skin irritation with possible burns, especially if skin is wet or moist. May cause discoloration.						
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Consideration	S dianaaal of ooto	les eize sucrtition s	nhy Fodorol rogul	lationa may a	anki to omati oo	ntoiner. State and/or legal
regulations may be Section 14	different. Dispose of in a	cordance with all	local, state and fed	eral regulations or	r contract with	a licensed chen	nical disposal agency.
UN/NA number:	UN1627 Shippin	g name: Mercu	rous nitrate				
Hazard class: 6.1 Exceptions: No e	xceptions 2012 EF	group: II G Guide # 141	Reporta	ble Quantity: 10) lbs (4.54 kg) Mar	ine pollutant: Yes
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number f	or the anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Mercurous nitrate (CA	AS # 10415-75-5)	Listed	10 lbs (4.54 kg)	Not listed	Listed	Not listed	Not yet validated
Section 16	Additional Information						

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	
SC SC	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product M	ETHYL ALCOHOL	
Synonyms Me	ethanol ; Wood Alcohol	
Section 2	Hazards Identification	
Signal word: D. Pictograms: Gi Target organs: GHS Classificat Flammable liquid Acute toxicity, or Acute toxicity, or Acute toxicity, de Acute toxicity, de Acute toxicity, de Acute toxicity, de Acute toxicity, de Acute toxicity, de Acute toxicity, or Acute toxicity, de Acute toxicity flat H3TOT-SE (Categ GHS Label infor H225: Highly flat H301: Toxic if sw H311: Toxic if sw H311: Toxic if int H370: Causes da	ANGER HS02 / GHS06 / GHS08 Central nervous system, Liver, Kidneys, Heart ive tion: d (Category 2) ral (Category 3) rmal (Category 3) halation (Category 3) halation (Category 3) gory 1) rmation: Hazard statement: mmable liquid and vapour. vallowed. ontact with skin. haled. amage to organs.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces No smoking. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330 +P310: IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER or doctor/physician. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P308+P312: IF exposed or concerned: Call a POISON CENTER or doctor/physician if you feel unwell. P370+P378: In case of fire: Use dry chemical, alcohol foam, carbon dioxide or water spray to extinguish. P403+P233: P235: Store in a well-ventilated place. Keep container tightly closed. Keep cool. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with all local, state and federal regulations.

Ca Prop 65: This product contains a chemical known to the State of California to cause reproductive toxicity (Methanol, developmental).

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Methanol		67-56-1	100%	200-659-6		
Section 4	First Aid Measures					

INGESTION: MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: VAPOR HARMFUL. HARMFUL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IN CONTACT WITH SKIN. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Fires involving a small amount of combustibles may be smothered by dry chemical. Vapors formed from this product are heavier than air and may travel along the ground to a distant source of ignition and flash back instanty. Closed containers exposed to heat may explode. Burns with a clear, almost invisible flame. Contact with strong oxidizers may cause fire.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection					
	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Linnes.	Methanol	TWA: 262 mg/m ³ / STEL: 328 mg/m ³	TWA: 260 mg/m ³	TWA: 260 mg/m ³ / STEL: 325 mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	perties					
Appearance: Clear, c Odor: Pungent+ odor Odor threshold: Data pH: Data not availabl Melting / Freezing pc Boiling point: 65°C (Flash point: 11°C (5)	Appearance: Clear, colorless liquid. Evaporation ra Odor: Pungent+ odor. Flammability (Odor threshold: Data not available. Explosion limi pH: Data not available. Vapor pressur Melting / Freezing point: -98°C (-144°F) Relative densi Boiling point: 10°C (52°F) CC Solubility(ies)			: 4.6 ivailable. .3% / 36% / 20°C 0.79	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: (n-octa ion temperature: sition temperature Data not available formula: CH ₃ OH weight: 32.04	anol / water): Low Pow:82 463°C (867°F) e: Data not available. e.
Section 10	Stability & Reactivity				1		
Chemical stability: S Conditions to avoid:	Stable Excessive temperatures, hea	Hazaro t, sparks, open	lous polymerization: N flame and other sources	Vill not occur. of ignition.			
Incompatible materia	als: Strong oxidizing agents, s	trong acids, zin	c, aluminum and magne	sium, reducers, alka	lies.		
Hazardous decompo	osition products: Oxides of ca	arbon and forma	aldehyde.				
Section 11	Toxicological Information						
Skin corrosion/irrita Serious eye damage Respiratory or skin s Germ cell mutagenic Carcinogenity: Data NTP: No component of IARC: No component OSHA: No component Reproductive toxicit STOT-single exposu STOT-repeated expoc Aspiration hazard: I Potential health effe Inhalation: Inhalation Ingestion: Ingestion r Cannot be made non Skin: Contact with sk Eyes: Contact with e Signs and symptom	Acute toxicity: Oral-rat LD50: 5,628 mg/kg ; Inhalation-rat LC50: 64,000 mg/kg/4hours ; Skin-rabbit LD50: 15,800 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 1 with narcotic effects. STOT-repeated exposure: Data not available Potential health effects: Inhalation of this material may cause irritation of the respiratory tract, nausea, shortness of breath and headache. Ingestion: Ingestion may cause headache, dizziness, weakness, euphoria, drowsiness, shortness of breath, vomiting and incoordination. Can also cause blindness and death. Cannot be made nonpoisonous. Skin: Contact with skin can cause moderate irritation, defatting, cracking and dermatitis. Skin absorption may course irritation.						
Section 12	Ecological Information						
Toxicity to fish: Lepo Toxicity to daphnia a Toxicity to algae: No Persistence and deg Mobility in soil: No o Other adverse effect	Toxicity to fish: Lepomis macrochirus (fish, fresh water), LC50 = 15,400 mg/l/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna, EC50 = >10,000 mg/l/48 hours Toxicity to algae: No data available Persistence and degradability: Readily biodegradable Bioaccumulative potential: Not expected to bioaccumulate Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.						
Section 13	Disposal Considerations						
These disposal guidelines accordance with all local, s	are intended for the disposal of catal state and federal regulations or contra	og-size quantities act with a licensed	only. Federal regulations may chemical disposal agency.	y apply to empty contair	ner. State and/or	local regulations may	be different. Dispose of in
Section 14	Transport Information						
UN/NA number: U Hazard class: Dor Exceptions: Limit	UN1230 mestic: 3 International: 3, ted quantity equal to or less	(6.1) s than 1 L	Shipping name: M Packing group: II 2012 ERG Guide #	lethanol Repor 131	table Quant	ity: Yes M	larine pollutant: No
Section 15 Regulatory Information							
A chemical is considered t	to be listed if the CAS number for the	e anhydrous form	is on the Inventory list.		DOI	NDO	
Componer	iit.	ISCA		RURA CODE	DSL	NUSL	
		LISTED	ο,υυυ iss. (2270 kg)	0154	LISTED	NOT IISTED	82; DTB; D2A; D2B

Section 16 **Additional Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure.

Section 1	Chemical Product and Company Information	Page E1 of E2
scien	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product NITRIC	C ACID, 70%	
Synonyms Azotic	Acid	
Section 2	Hazards Identification	
Signal word: DANG Pictograms: GHS03 Target organs: Eyes Contemport Oxidizing liquid (Cate Skin corrosion (Catego CHS Label informati H272: May intensify fi H314: Causes severe Supplementary infor Remove cap slowly to	ER 3 / GHS05 s, Skin, Respiratory system, Teeth () gory 3) gory 1A) ry 1) ion: Hazard statement: ire; oxidizer. e skin burns and eye damage. rmation: o release pressure.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles/acids/oxidizers. P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P370+P378: In case of fire: Use dry chemical, alcohol foam, carbon dioxide or water spray to extinguish. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303: Wash contaminated clothing before reuse. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Nitric acid Water		7697-37-2 7732-18-5	68-70% 30-32%	231-714-2 231-791-2		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Protect from physical damage and sunlight.

Section 8	Exposure Controls / Personal Protection							
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Limits:	Nitric acid	TWA: 2 ppm STEL: 4 ppm	TWA: 2 ppm	TWA: 2 ppm STEL: 4 ppm				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHA-

approved respirator.								
Section 9	Section 9 Physical & Chemical Properties							
Appearance: Clear to pale yellow liquid. Evaporation rate (=1): Data not available Partition coefficient: Data not available Odor: Irritating, suffocating odor. Flammability (solid/gas): Data not available. Partition coefficient: Data not available Odor threshold: Data not available. Explosion limits: Lower / Upper: Data not available. Partition coefficient: Data not available pH: <1 (1% solution)						not available Data not available e: Data not available. e.		
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid Incompatible mater Hazardous decomp	Stable : Containers may burst when h ials: Reacts with a wide variety osition products: Nitrogen ox	Hazardo eated. Avoid con of metals (espe ides and hydroge	ous polymerization: ntact with water. cially when powdered) en gas.	Will not occur. bases, carbides, su	lfides, fulmina	ites, picrates, turpe	entine and combustible materials	
Section 11	Toxicological Information							
Acute toxicity: Ora Skin corrosion/irrit: Serious eye damag Respiratory or skin Germ cell mutageni Carcinogenity: Dat NTP: No component IARC: No componen OSHA: No componen OSHA: No componen Reproductive toxici STOT-single exposis STOT-repeated exp Aspiration hazard: Potential health effi Inhalation: Burning s Ingestion: Sore thro Skin: Serious skin b Eyes: Redness, pair Signs and symptom pressure, leading to Additional informat	Acute toxicity: Oral-human LD _{L0} : 430 mg/kg ; Inhalation-rat LC50: 0.8 mg/L Skin corrosion/irritation: Skin-rabbit - Corrosive Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Burning sensation, cough, labored breathing, shortness of breath, sore throat. Symptoms may be delayed. Ingestion: Sore throat, abdominal pain, burning sensation in the throat and chest, vomiting, shock or collapse. Skin: Serious skin burns, pain, yellow staining of the skin. Eyes: Redness, pain, burns. Signs and symptoms of exposure: Effects may be delayed. Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis, marked fall in blood							
Section 12	Ecological Information							
Toxicity to fish: Ga Toxicity to daphnia Toxicity to algae: No Persistence and de Mobility in soil: No Other adverse effec	Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 72 mg/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacia), ECLo = 107 mg/L Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Section 13 Disposal Considerations							
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG)								
UN/NA number:UN2031Shipping name:Nitric acidHazard class:8, (5.1)Packing group:IIReportable Quantity:1,000 lbs (454 kg)Marine pollutant:NoExceptions:No exceptions2012 ERG Guide #157157NoNo								
Section 15 Regulatory Information								
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.								
Compone Nitric acid	ent	Listed	CERLCA (RQ) 1,000 lbs (454 kg)	RCRA code D001	DSL Listed	NOT listed	WHMIS Classification	
Section 16	Additional Information							

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	Page E1 of E2
scie	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product OXA	LIC ACID, DIHYDRATE	
Synonyms Ethar	nedioic Acid, Dihydrate	
Section 2	Hazards Identification	
Signal word: DAN Pictograms: GHSt Target organs: Re GHS Classification Skin corrosion (Cate Eye damage (Cate GHS Label informa H314: Causes seve	IGER 05 espiratory system, Kidneys, Eyes, Skin n: egory 1B) gory 1) ation: Hazard statement: ere skin burns and eye damage.	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Oxalic acid, dihydrate		6153-56-6	100%	205-634-3 (anhydrous)			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material decomposes on heating to form carbon oxides and formic acid.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Pro	otection		
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Oxalic acid, anhvdrous	TWA: 1 mg/m ³ / STEL: 2 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³ / STEL: 2 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Proper	ties						
Appearance: Solid. Odor: No odor Odor threshold: Di pH: 1.0 (13%) Melting / Freezing p Boiling point: 149- Flash point: Non-fil	White, crystalline powder F ata not available F point: 101.5°C (216°F) N 160°C (300-320°F) F ammable S	Evaporation ra Elammability (s Explosion limit /apor pressure /apor density Relative densit Solubility(ies):	tte (=1): Data not a solid/gas): Data not a ts: Lower / Upper: D e (mm Hg): <0.001 @ (Air = 1): 4.4 ty (Specific gravity): Soluble in water (14	vailable available Data not available 0 20°C (68°F) 1.65 @ 18.5°C g/100 mL)	Partition c Auto-ignit Decompos Viscosity: Molecular Molecular	coefficient: (n-octa ion temperature: sition temperature Data not available formula: HOOCC weight: 126.07	nol / water): Log Pow: 1.75 Data not available : 157°C OOH•2H ₂ O	
Section 10	Stability & Reactivity							
Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition. Avoid exposure to light and moisture. Incompatible materials: Alkalies, chlorites, hypochlorites, oxidizing agents, furfuryl alcohol, silver compounds. Hazardous decomposition products: Carbon oxides and formic acid.								
Section 11	Toxicological Information							
Acute toxicity: Ora Skin corrosion/irrit Serious eye damag Respiratory or skin Germ cell mutager Carcinogenity: Da NTP: No componen IARC: No componen OSHA: No componen Ca Prop 65: This pri Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Inhalation Ingestion: Ingestion Skin: Contact with Signs and sympton Additional information	Acute toxicity: Oral-rat LD50: 375 mg/kg Skin corrosion/irritation: Skin-rabbit - 500 mg/24H - mild irritant. Serious eye damage/irritation: Eyes-rabbit - 250 µg/24H - Severe irritant. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause cough, sore throat, burning sensation, shorness of breath, labored breathing, headache. Ingestion: Ingestion may cause sore throat, burning sensation, abdominal pain, labored breathing, convulsions, paralysis, cardiac dysrhythmia, shock kor collapse. Skin: Contact with skin may cause redness, pain and/or burns. Eyes: Contact with skin may cause redness, pain, alured vision and/or burns. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information							
Toxicity to fish: Pimephales promelas (fish, fresh water), LC50 = 34.1 mg/L/96H Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 137 mg/L/48H Toxicity to algae: Scenedesmus quadricauda (Algae), EC50 = 790 mg/L/168H Persistence and degradability: Readily biodegradable Bioaccumulative potential: No data available Mobility in soil: No data available PBT and VPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13	Disposal Considerations							
These disposal gur regulations may b	idelines are intended for the dis e different. Dispose of in accord	posal of cata dance with all	log-size quantities o local, state and fed	nly. Federal regul eral regulations or	ations may a contract with	apply to empty con h a licensed chem	ntainer. State and/or local nical disposal agency.	
Section 14	Transport Information (US	DOT / CANAE	DA TDG)					
UN/NA number: Hazard class: 8 Exceptions: 1 in	UN3261 Shipping na Packing gro nited quantity equal to or less t	ume: Corros oup: III nan 5 Ko	sive solid, acidic, org Reportal 2012 ER	ganic, n.o.s., (Oxa ble Quantity: No G Guide # 154	alic acid)	Mar	i ne pollutant : No	
Section 15	Regulatory Information							
A chemical is considered	ed to be listed if the CAS number for the	anhydrous form	is on the Inventory list.					
Compon	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Oxalic acid		Listed	Not listed	Not listed	Listed	Not listed	€	

Section 16 **Additional Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

SDS No.: PP0140

Section 1

7°

Chemical Product and Company Information

80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only.

Not for drug, food or household use.

Product	PHENOLPHTHALEIN	
Synonyms	3,3-Bis(para-hydroxyphenyl)phthalide	
Section 2	Hazards Identification	
Signal wor Pictograms Target orga GHS Class Mutagenicit Carcinogen Reproductiv GHS Label H341: Susp H350: May H361f: Susp	rd: DANGER s: GHS08 ans: None known sification: ty (Category 2) nicity (Category 1B) ve toxicity (Category 2) I information: Hazard statement: pected of causing genetic defects. cause cancer. spected of damaging fertility.	Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P280: Wear protective gloves/protective clothing/eye protection/face protection. P308+P313: IF exposed or concerned: Get medical attention. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - WARNING! This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Phenolphthalein		77-09-8	100%	201-004-7			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam. Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from light.

Section 8	Exposure Controls / Personal Protection							
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
Exposure Limits:	Phenolphthalein	None established	None established	None established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Properties							
Appearance: Solid. Odor: No odor. Odor threshold: Da pH: Data not availab Melting / Freezing po Boiling point: Data not Flash point: Data not	White to off-white powder ta not available. le. pint: 261°C (501°F) not available t available	F Eva Flam Expl Vapo Rela Solu	ooration ra mability (osion limi or pressur or density tive densi bility(ies):	ate (=1): Data not a solid/gas): Data not a ts: Lower / Upper: D e (mm Hg): Data not a (Air = 1): Data not av ty (Specific gravity): : Slightly soluble in wa	vailable available. Data not available available ailable 1.299 ter.	Partition cc Auto-ignitic Decomposi Viscosity: Molecular f Molecular v	befficient: Data no on temperature: I ition temperature Data not available formula: C ₂₀ H ₁₄ C weight: 318.33	ot available Data not available : Data not available. J ₄
Section 10	Stability & Reactivity	y						
Chemical stability: Conditions to avoid	Stable : Excessive temperature	s. Protect fro	Hazardo om light.	ous polymerization: \	Will not occur.			
	ais. Strong usid	a of oorbon						
Hazardous decomp	osition products: Oxide	es of carbon.						
Section 11	Toxicological Inform	nation						
Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available NTP: (R) Reasonably anticipated to be a human carcinogen. IARC classified: Group 2B: Possibly carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available StoT-repeated exposure: Data not available Potential health effects: Inhalation: May be harmful if inhaled. May cause respiratory tract irritation. Ingestion: May be harmful if assolwed. Skin: May be harmful if absorbed through skin. May cause skin irritation. Eyes: Contact causes irritation. Eyes: Contact causes irritation. Signs and symptoms of exposure: See Potential health effects above. Risk of cancer depends on level and duration of exposure.								
Section 12	Ecological Informati	on						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13 Disposal Considerations								
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.								
Hazard class: Not Exceptions: Not	not applicable applicable applicable	Packing g	name: N roup: N Guide #	lot applicable Not applicable	Reportable Qua	ntity: No	Mari	i ne pollutant: No
Section 15 Regulatory Information								
A chemical is considered	to be listed if the CAS num	ber for the anh	ydrous form	is on the Inventory list.				
Compone	nt		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Phenolphthalein			Listed	Not listed	Not listed	Listed	Not listed	Not listed
Section 16	Additional Informati	on						

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	PHOSPHORIC ACID, 85%	
Synonyms	ortho-Phosphoric Acid	
Section 2	Hazards Identification	
Signal word Pictograms: Target organ eyes, skin. GHS Classif Acute toxicity Acute toxicity Acute toxicity Acute toxicity Acute toxicity Skin corrosic GHS Label i H302: Harmf H313: May b H314: Cause H330: Fatal i	 DANGER GHS05 / GHS06 / GHS07 ns: Respiratory system, circulatory system, gastrointestinal tract, blood, ication: y, oral (Category 4) y, dermal (Category 5) y, inhalation (Category 2) on (Category 1B) nformation: Hazard statement(s): ul if swallowed. e harmful in contact with skin. es severe skin burns and eye damage. f inhaled. 	 Precautionary statement(s): P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/eye protection/face protection. P284: Wear respiratory protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P333: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician. P363: Wash contaminated clothing before reuse. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Phosphoric acid Water		7664-38-2 7732-18-5	85-100% Remainder	231-633-2 231-791-2		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE FATAL IF INHALED. MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Contact with reactive metals, e.g. aluminum, may result in the generation of flammable hydrogen gas.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Neutralize with sodium bicarbonate, absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Phosphoric acid	TWA: 1 mg/m ³ STEL: 3 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: Use a chemical fume hood and/or wear a NIOSH/MSHA-approved respirator.

Physical & Chemical Properties Section 9 Appearance: Clear, colorless liquid. Partition coefficient: Data not available. Evaporation rate (= 1): Data not available. Odor: No odor. Flammability (solid/gas): Data not available. Auto-ignition temperature: Data not available Odor threshold: Data not available. Explosion limits: Upper/Lower: Not flammable Decomposition temperature: Data not available. Vapor pressure (mm Hg): 5.65 to 2.16 @ 20°C (68°F) pH: <1 @ 1 wt/wt% Viscosity: Data not available. Molecular formula: H₃PO₄ Melting / Freezing point: -17 to 21°C (1.4 to 5.8°F) Vapor density (Air = 1): Data not available Boiling point: 135-158°C (275-316°F) Relative density (Specific gravity): >1.573 @ 25°C (77°F) Molecular weight: 98.00 Flash point: Not flammable Solubility(ies): Miscible in water. Stability & Reactivity Section 10 Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures. Incompatible materials: Strong oxidizers, strong reducing agents, fluorine, bases, sulfur trioxide, phosphorus pentoxide, and finely divided metals. Hazardous decomposition products: Phosphorous oxides. Section 11 **Toxicological Information** Acute toxicity: Oral-rat LD50: 1,530 mg/kg ; Dermal-rabbit LD50: 2,740 mg/kg ; Inhalation-rabbit LC50: 1.689 mg/l/4 hours Skin corrosion/irritation: Skin-rabbit - causes burns. Serious eye damage/irritation: Eyes-rabbit - Corrosive to eyes. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May be harmful or fatal if inhaled. Material is extrememy destructive to the tissue of the mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed. Skin: May be harmful if absorbed through skin. Causes skin burns. Eyes: Causes severe eye burns and corneal damage. Signs and symptoms of exposure: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Additional information: RTECS #: TB6300000 Section 12 **Ecological Information** Toxicity to fish: LC50: Mosquitofish 138 mg/l/96 hours - Practically nontoxic Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 **Disposal Considerations** These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: UN1805 Shipping name: Phosphoric acid, solution Hazard class: 8 Packing group: III Reportable Quantity: 5,000 lbs (2,270 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 5 Lt. 2012 ERG Guide # 154 Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification DSL NDSL Component TSCA CERLCA (RQ) RCRA code Phosphoric acid Listed 5000 lb (2270 kg) Not listed Listed Not listed Е Section 16 **Additional Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure.
Section 1	Chemical Product and Company Information	Page E1 of E2
Scier	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product POTA	SSIUM BISULFATE	
Synonyms Potass	sium Hydrogen Sulfate	
Section 2	Hazards Identification	
Signal word: DANG Pictograms: GHS0 Target organs: Eye GHS Classification: Skin corrosion (Cate STOT-SE (Category GHS Label informat H314: Causes seven H335: May cause res	GER 5 / GHS07 ;s, Skin, Respiratory system, Gastrointestinal tract gory 1B) 3) tion: Hazard statement: e skin burns and eye damage. spiratory irritation.	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P303: Wash contaminated clothing before reuse. P304+P301: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Potassium bisulfate		7646-93-7	>99%	231-594-1	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY CAUSE RESPIRATORY IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Dry chemical, CO₂ or water spray.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Product readily dissolves in water to form weak Sulfuric acid solution. Sulfuric acid is highly corrosive and causes severe burns on contact.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from moisture.

Section 8	Exposure Controls / Personal Protection					
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Potassium bisulfate	Not established	Not established	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Proj	perties					
Appearance: Solid. Deli Odor: No odor Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: Decor Flash point: Data not	quescent, white crystalline powder a not available pint: 197°C (387°F) mposes t available	Evaporation ra Flammability (Explosion limit Vapor pressure Vapor density Relative density Solubility(ies):	te (=1): Data not a solid/gas): Data not a s: Lower / Upper: D e (mm Hg): Data not Air = 1): Data not av y (Specific gravity): Soluble in water	vailable ivailable ata not available available ailable 2.245	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data no ion temperature: I sition temperature Data not available formula: KHSO ₄ weight: 136.17	ot available Data not available : >300°C (570°F)
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable Excessive temperatures and	Hazardo moisture.	us polymerization: \	Vill not occur.			
Incompatible materi	als: Strong oxidizers, alkalies,	and permangana	tes. Reacts with wate	r to form weak Sulfur	ic acid solutio	on.	
Hazardous decompo	osition products: Sulfur oxide	PS.					
Section 11	Toxicological Information						
Acute toxicity: Oral Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component Ca Prop 65: This pror Reproductive toxici STOT-single exposu STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: Dust may Ingestion: May irritat Skin: Contact with se Eyes: Contact with se Signs and symptom Additional informati	-rat LD50: 2340 mg/kg ition: Data not available sensitization: Data not available sensitization: Data not available sensitization: Data not available a not available of this product present at levels of this product present at levels b both product present at levels b bo	ble s greater than or es s greater than or els greater than or nicals known to th is classified as sp stomach. s. opriate procedure	qual to 0.1% is identif equal to 0.1% is identi equal to 0.1% is ident e State of California to ecific target organ tox s to minimize potentia	ed as a known or an fied as probable, pos iffied as a carcinoger cause cancer or rep cant, single exposure	ticipated carc sible or confi or potential roductive tox e, category 3	inogen by NTP. rmed human carcin carcinogen by OSH icity. with respiratory effe	ogen by IARC. IA. ects.
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be	delines are intended for the different. Dispose of in acc	disposal of cata ordance with all	og-size quantities o local, state and fed	nly. Federal regula eral regulations or o	ations may a contract with	apply to empty cor a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (U	S DOT / CANAE	A TDG)				
UN/NA number:	UN2509 Shipping	name: Potass	ium hydrogen sulfa	te			
Hazard class: 8	Packing (proup: II	Reporta	Die Quantity: No		Mari	ne pollutant: No
Exceptions: Limi	teo quantity equal to or les	s inan 1 Kg	2012 ER	Guiae # 154			
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for	the anhydrous form	IS ON THE INVENTORY LIST.		Dei	NDSI	
Compone	ni,	ISCA		RCKA COUP	DSL	NUSL	while Classification

Section 16 Additional Information

Potassium bisulfate

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Not listed

Listed

Listed

Not listed

Not listed

€€

Section 1

Product Synonyms **Chemical Product and Company Information**

Page E1 of E2

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only.

Not for drug, food or household use.

80 Northwest Blvd. (800) 225-3739

None

Section 2 **Hazards Identification**

POTASSIUM BROMIDE

shua NH 03063

Signal word: WARNING Pictograms: GHS07 Target organs: None known

GHS Classification: Eye irritation (Category 2B)

GHS Label information: Hazard statement: H319: Causes serious eve irritation.

Precautionary statement:

P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Potassium bromide		7758-02-3	100%	231-830-3		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

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Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection					
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	Τ	
Exposure Limits:	Potassium bromide	Not established	Not established	Not established	1	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties					
Appearance: Solid. White crystalline powder Odor: No odor Odor threshold: Data not available pH: Data not available Melting / Freezing point: 760°C (1400°F) Boiling point: 1435°C (2615°F) Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): 1 mm @ 795°C Vapor density (Air = 1): 4.12 Relative density (Specific gravity): 2.749 @ 25°C Solubility(ies): 53 g/100 ml water @ 20°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available Molecular formula: KBr Molecular weight: 119.01				
Section 10 Stability & Reactivity						
Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Contact with strong acids can liberate hydrogen bromide, strong oxidizers can liberate bromine. Avoid heating above 800°C (1472°F). Incompatible materials: Strong oxidizers, acids, aluminum and its alloys.						
Hererdeue desemperation productes. Hydrogen bramide gas and/or bramine gas						

Hazardous decomposition products: Hydrogen bromide gas and/or bromine gas.

Section 11 Toxicological Information

Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause sore throat, coughing, shortness of breath. Ingestion: Ingestion may cause pain in swallowing, abdominal pain, nausea, and drowsiness. Skin: Contact with skin may cause irritation and/or dermatitis. Eyes: Contact with eyes may cause severe irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available. Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: Data not available Section 12 **Ecological Information** Toxicity to fish: Pimephales promelas (fish, fresh water), LC50 = >30,000 ug/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = >30,000 ug/L/96 hours Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG) UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No 2012 ERG Guide # Not applicable **Exceptions:** Not applicable Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. CERLCA (RQ) DSL NDSL WHMIS Classification Component TSCA RCRA code Potassium bromide Listed Not listed Not listed Listed Not listed D2A Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
Scien	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product POTAS	SSIUM CARBONATE, ANHYDROUS	
Synonyms Potash	h / Carbonic Acid, Dipotassium Salt	
Section 2	Hazards Identification	
Signal word: WARN Pictograms: GHS07 Target organs: Non GHS Classification: Acute toxicity, oral (C Eye irritation (Catego GHS Label informat H302: Harmful if swa H319: Causes seriou	NING 7 he known Category 4) bry 2A) tion: Hazard statement: allowed. Js eye irritation.	Precautionary statement: P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical advice/attention. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Potassium carbonate		584-08-7	100%	209-529-3		
Section 4	First Aid Measures					

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Concentrated solutions of potassium carbonate present a greater hazard than the granular form. Solution is strongly alkaline and should be handled with care.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling.

Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale dusts. Wash thoroughly after handling. Remove and wash clothing before reuse.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection			
Exposure Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	Τ
Exposure Limits:	Potassium carbonate	None established.	None established.	None established.	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	perties				
Appearance:Solid, white granular powder.Evaporation rate (=1):Data not availablePartition coefficient:Data not availableOdor:No odor.Flammability (solid/gas):Data not available.Auto-ignition temperature:Data not availableOdor threshold:Data not available.Explosion limits:Lower / Upper:Not flammableDecomposition temperature:>950°C (1)pH:11.6 (3% solution)Vapor pressure (mm Hg):Data not availableViscosity:Data not availableMelting / Freezing point:891°C (1635°F)Vapor density (Air = 1):Data not availableMolecular formula:K2CO3Boiling point:Not flammableSolubility(ies):Soluble in waterSoluble in waterNolecular weight:138.21						
Section 10	Stability & Reactivity					
Chemical stability: Conditions to avoid potash.	Stable : Excessive temperatures. Avo	Hazardous polymerization: Will not occur. id moisture. Avoid contact with lime. Potassium carbonate a	and lime will react in the presence of water to form caustic			
Incompatibilities wit	th other materials: Acids. stro	ng oxidizers.				
Hazardous decompo	osition products: Carbon oxic	les, potassium oxides.				
Section 11	Toxicological Information					
Acute toxicity: Oral- Skin corrosion/irrita Serious eye damage Respiratory or skin demonstration Germ cell mutagenic Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component Ca Prop 65: This prod Reproductive toxicit STOT-single exposu STOT-repeated expo Aspiration hazard: I Potential health effe Inhalation: May be ha Ingestion: Harmful if Skin: Causes irritatio Eyes: Causes seriou Signs and symptom Additional informati	Section 11 Toxicological Information Acute toxicity: Oral-rat LD50: 1870 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available. STOT-single exposure: Data not available. STOT-repeated exposure: Data not available. Potential health effects: Inhalation: May be hamful if inhaled. Causes respiratory irritation with sore throat and cough. Ingestion: Harmful if swallowed with burning sensation in the throat and chest. Skin: Causes irritation with redness and pain. Signs and examptome of exposure: Sensoriate proceedures to minimize potential hazards.					
Section 12	Ecological Information					
Toxicity to fish: LC5 Toxicity to daphnia a Toxicity to algae: No Persistence and deg Mobility in soil: No Other adverse effect	Toxicity to fish: LC50 - Pimephales promelas (Fathead minnow) 940,000 µg/L/24 hours Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) 670,000 µg/L/24 hours Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and VPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.					
Section 13	Disposal Considerations					
These disposal guid regulations may be	delines are intended for the o different. Dispose of in acc	disposal of catalog-size quantities only. Federal regulat ordance with all local, state and federal regulations or c	tions may apply to empty container. State and/or local ontract with a licensed chemical disposal agency.			
Section 14	Transport Information					

dection 14 manaport informa						
UN/NA number: Not applicable Hazard class: Not applicable Exceptions: Not applicable	able Shipping name: Not Regulated e Packing group: Not applicable 2012 ERG Guide # Not applicable		Reportable Quantity: No		Marine pollutant: No	
Section 15 Regulatory Informa	ation					
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.						
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Potassium carbonate	Listed	Not listed	Not listed	Listed	Not listed	D2B ; E
Section 16 Additional Information	tion					

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 POTASSIUM CHLORIDE Product Synonyms Muriate of Potash / Potassium Muriate / Potassium Monochloride Section 2 **Hazards Identification** This substance or mixture has not been classified as hazardous according Precautionary statement: to the Globally Harmonized System (GHS) of Classification and Labeling of P312: Call a POISON CENTER or doctor if you feel unwell. Chemicals. Signal word: WARNING Pictograms: No symbol required Target organs: None known **GHS Classification:** Acute toxicity, oral (Category 5) GHS Label information: Hazard statement: H303: May be harmful if swallowed.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information of	on Ingredients			
Chemical Name		CAS #	%	EINECS	
Potassium chloride Sodium chloride Calcium and Magnes	ium chlorides and sulfates	7447-40-7 7647-14-5 Various	95.0 - 99.5% 0.3 - 3.7% 0.2 - 1.3%	231-211-8 231-598-3 Various	
Section 4	First Aid Measures				

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection		
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Limits:	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	erties					
Appearance: Solid. Odor: No odor. Odor threshold: Dat pH: 5.4-10.0 (5% soli Melting / Freezing poi Boiling point: 1500° Flash point: Not app	White crystals or powder. a not available. ution) nt: 772-776°C (1423-1428°F) C (2732°F) Sublimes licable	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density Relative densit Solubility(ies):	te (=1): Data not a solid/gas): Data not a ss: Lower / Upper: N e (mm Hg): Approxim (Air = 1): 2.57 y (Specific gravity): 34.2 g/100 ml water	vailable available. lot applicable hately zero 1.986-1.990 @ 20°C	Partition cd Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data no on temperature: I ition temperature Data not available formula: KCI weight: 74.56	ot available Data not available : Data not available
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid Incompatible materi chloride gas. May rea Steel, building materia Hazardous decompo	Stable Excessive temperatures and h als: Avoid contact with hot Nitric act violently with Bromine trifluor als (such as cement), Bromine o psition products: None known	Hazardo eat. Hygroscopi e acid, may caus de and may exp r Trifluoride. Pol See above rea	us polymerization: c material. e evolution of toxic Ni lode if mixed with Pot tentially explosive reac ctions.	Will not occur. trosyl chloride. Cont assium permangana ction may occur if mi	tact witth other te and Sulfurio xed with Dichl	strong acids may cacid. Can react w oromaleic anhydrid	produce irritating Hydrogen vith most metals, such as Iron of le and Urea.
Section 11	Toxicological Information						
Acute toxicity: Oral Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component STOT-single exposu STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: May cause Skin: Contact may cause Skin: Contact with e Signs and symptom procedures to minimi Additional informati	Acute toxicity: Oral-rat LD50: 2,600 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Eyes-rabbit - 500 mg/24 hours - mild irritant. Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Stot-single exposure: Condition, suggravated by exposure may include kidney disorders and high blood pressure (hypertension). Exercise appropriate procedures to minimize potential hazards.						
Section 12	Ecological Information						
Toxicity to fish: Gambusia affinis (fish, fresh water), LC50 = 10,000 mg/L/24 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC100 = 1,010 mg/L/24 hours Toxicity to algae: Scenedesmus subspicatus (Algae), EC50 = 2,500 mg/L/72 hours Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be	delines are intended for the d different. Dispose of in acco	sposal of catal rdance with all	log-size quantities of local, state and fed	only. Federal regulations or	ations may a contract with	pply to empty cor a licensed chem	ntainer. State and/or local nical disposal agency.
		DOT / CANAL					
UN/NA number: Hazard class: No Exceptions: Not	Not applicableShippt applicablePackiapplicable2012 I	ing name: N ng group: No ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	antity: No	Mari	ne pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for th	e anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Potassium chloride		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16	Additional Information						

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	POTASSIUM CHROMATE	
Synonyms	Dipotassium Chromate / Neutral Potassium Chromate	
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classi Skin irritatio Skin sensitiz Eye irritatior STOT-SE (C Mutagenicit Carcinogeni Aquatic toxi Aquatic toxi Aquatic toxi H315: Caus H317: May H319: Caus H335: May H340: May (H340; May) H340: Very	d: DANGER :: GHS07 / GHS08 / GHS09 Ins: Respiratory system, Liver, Kidneys, Blood Ins: Respiratory system, Liver, Kidneys, Blood Instance of the system of the	 Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P333+P313: If skin irritation or rash occurs: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P331: Collect spillage. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.
 H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H335: May cause respiratory irritation. H340: May cause genetic defects. H350: May cause cancer. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long lasting effects. 		P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity. (Chromium [hexavalent compounds])

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Potassium chromate		7789-00-6	100%	232-140-5		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Prot	tection		
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Limits:	Chromium(VI) inorganic compounds	TWA: 0.05 mg/m ³ (A1) as Cr	TWA: 0.005 mg/m ³ as Cr(VI)	TWA: 0.001 mg/m ³ as Cr

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	erties				
Appearance: Solid. Yellow crystals Odor: No odor Odor threshold: Data not available pH: Data not available Melting / Freezing point: 975°C (1787°F) Boiling point: Data not available Flash point: Data not available	Evaporation rate (= 1): Data not available Flammability (solid/gas): Data not available Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.732 @ 18°C Solubility(ies): Soluble in water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available Molecular formula: K ₂ CrO ₄ Molecular weight: 194.21			
Section 10 Stability & Reactivity					
Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition. Incompatible materials: Reducing agents. Most organic substances, bromides, iodides, chlorides, hypophosphites, sulfites, sulfides. Combustible materials, oxidizable materials. Hazardous decomposition products: Potassium oxides. Potassium oxides. Potassium oxides.					
Section 11 Toxicological Information					
Acute toxicity: Oral-mouse LD50: 180 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: Known to be a human carcinogen. IARC classified: Group 1: Carcinogenic to humans.	ble				

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity. (Chromium [hexavalent compounds])

Reproductive toxicity: Data not available

STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory effects.

STOT-repeated exposure: Data not available Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause burning sensation, sore throat, cough, wheezing, labored breathing.

Ingestion: Ingestion causes nausea, vomiting, abdominal pain, burning sensation, diarrhea, shock or collapse.

Skin: Causes skin irritation. May cause an allergic skin reaction.

Eyes: Contact with eyes may cause serious irritation.

Signs and symptoms of exposure: Risk of cancer depends on level and duration of exposure. Chromium compounds in the form of chromates and dichromates have been found to be mutagenic in bacterial and mammalian cells, including those of the Chinese hamster. Recent studies indicate a significant risk of lung cancer among long-term employees of the chromate producing industry. Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: GB2940000

Section 12 Ecological Information

Toxicity to fish: No data available

Mobility in soil: No data available

Toxicity to daphnia and other aquatic invertebrates: No data available

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.
Section 14
Transport Information (US DOT / CANADA TDG)

UN/NA number: UN3086 Hazard class: 6.1, (5.1) Exceptions: No exceptions	Shipping name: Toxic Packing group: II 2012 ERG Guide # 14	name: Toxic solid, oxidizing, n.o.s., (Potassium chromate) roup: II Reportable Quantity: Yes Guide # 141				Marine pollutant: No	
Section 15 Regulatory I	nformation						
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Potassium chromate	Listed	10 lbs (4.54 kg)	D001, D007	Listed	Not listed	C ; D2A; D2B	
Section 16 Additional Ir	formation						

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	POTASSIUM DICHROMATE	
Synonyms	Potassium Bichromate	
Section 2	Hazards Identification	
Signal work Pictograms Target orga GHS Classi Ox. Sol. (Ca Acute tox. (I Acute tox. (I Acute tox. (I Carc. (Cate; STOT - RE Aquatic Chr GHS Label H272: May H301: Toxic H302: Ham H344: May H312: Ham H314: Caus H317: May H340: May H340: May H360FD: M H372**: Cai H400: Very H410: Very	d: DANGER :: GHS06 / GHS09 / GHS05 / GHS08 / GHS03 ins: Kidneys, Liver, Blood Image: Constraint of the state of the sta	 Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P284: Wear respiratory protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P310: Immediately call a POISON CENTER or doctor. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P312: Call a POISON CENTER or doctor. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P370+P378: In case of fire: Use water to extinguish. P391: Collect spillage. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Potassium dichromate	3	7778-50-9	100%	231-906-6		
Section 4	First Aid Measures					

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person. Can cause severe tissue destruction. Kidney failure may follow and result in death.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. May cause irritation of nasal septum and respiratory tract. Prolonged or repeated exposure may cause ulceration and perforation of the nasal septum.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention. Contact causes severe irritation and potential permanent damage to the eyes. Exposure to low level concentrations may cause moderate irritation and/or conjunctivitis.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. Massive overexposure to solutions could lead to kidney failure and death.

Note to physician: Massive overexposure to solutions of potassium dichromate can lead to kidney failure and death. Death has been avoided in several such cases through the use of early renal dialysis. Skin ulcerations may be treated by removal from exposure, daily cleansing and debridement, and application of antibiotic cream and dressing to prevent further exposure or contamination.

Section 5 Fire Fighting Measures

Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

General information: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool. Although not flammable, this chemical may intensify fire when in contact with combustible materials. Water runoff may contain chromium compounds and should not be allowed to enter sewers or waterways. May emit toxic fumes under fire conditions.

Section 6 Accidental Release Measures

Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation. Recover for use if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water. Avoid runoff into storm sewers and ditches which lead to waterways.

Read label on conta adequate ventilation Handling: Use with wash clothing before Storage: Store in a	iner before using. Do not wear (. Wash thoroughly after handlin adequate ventilation. Avoid con e reuse. cool, dry, well-ventilated area av	contact lenses when working g. tact with eyes, skin and clot vay from incompatible subst	g with chemicals. hing. Avoid ingesti ances.	Keep container	r tightly closed. Keep or hale dusts. Wash thoror	ut of reach of children. Use with ughly after handling. Remove and
Section 8	Exposure Controls / Pers	onal Protection				
Exposure Limitor	Chemical Name	ACGI	H (TLV)	0	OSHA (PEL)	NIOSH (REL)
* as water soluble Cr(VI) inorganic compounds	Potassium dichromate	TWA: 0.05	mg/m ^{3(A1)} *	TW	A: 0.005 mg/m ³ *	TWA: 0.001 mg/m ³ *
Engineering contro should wear safety g Respiratory protec approved respirator.	bls: Facilities storing or utilizing t glasses, goggles, or faceshield, l tion: None should be needed in	his material should be equip ab coat or apron, appropriat normal laboratory handling	oped with an eyewa te protective gloves at room temperatu	ash facility and s. Use adequa res. If dusty c	I a safety shower and fir ate ventilation to keep ai conditions prevail, work i	re extinguishing material. Personnel irborne concentrations low. in fume hood or wear a NIOSH/MSHA-
Section 9	Physical & Chemical Pro	perties				
Appearance: Oran Odor: No odor. Odor threshold: N pH: N/A Melting / Freezing Boiling point: N/A Flash point: Not fla Evaporation rate (ge-red crystals. /A point: 398°C (748°F) ammable. = 1): N/A	Flammability (solid/gas): Explosion limits: Upper: Vapor pressure (mm Hg) Vapor density (Air = 1): 1 Relative density (Specific Solubility(ies): Appreciat Partition coefficient: (n- Auto-ignition temperatur	N/A N/A Lower: N/A N/A c gravity): 2.67 ole in water (>10%) octanol / water): lo re: N/A	g Pow: 5	Decomposition tem Viscosity: N/A Molecular formula: Molecular weight: 2	perature: N/A K ₂ Cr ₂ O ₇ 94.19
Section 10	Stability & Reactivity					
Chemical stability: Conditions to avoid	Stable d: Excessive temperatures and	Hazardous polym heat. Stable under recomm	erization: Will not	occur. ditions.		
Incompatibilities w	ith other materials: Organic m	aterials, powdered metals, I	nydrazine. Do not	store near acio	ds.	
Hazardous decom	position products: Potassium	oxides, chromium oxides.	,			
		,				
Section 11	Toxicological Information	I.				
NTP: Listed.	IARC: Listed.*	C	SHA: Listed.**		Ca Prop 65: Liste	ed.
NTP: Listed. LARC: Listed.'' CSHA: Listed.'' Ca Prop 65: Listed. Effects of overexposure: Risk of cancer depends on level and duration of exposure. Chromium compounds in the form of chromates and dichromates have been found to be mutagenic in bacterial and mammalian cells, including those of the Chinese hamster. Recent studies indicate a significant risk of lung cancer among long-term employees of the chromate producing industry. INHALATION: May cause irritation of nasal septum and respiratory tract. Prolonged or repeated exposure may cause ulceration and perforation of the nasal septum. SKIN: Contact with broken skin may lead to formation of firmly marginated "chrome sores". EYES: Overexposure will cause severe irritation and potential permanent damage to the eyes. Low level concentrations may cause moderate irritation or conjunctivitis. INGESTION: Can cause severe tissue destruction, kidneys failure and death. Exercise appropriate procedures to minimize potential hazards. RTECS #: HX7680000 Oral-Rat LD50: 57 mg/kg; Dermal-Rabbit LD50: 1.17 g/kg; Inhalation-Rat LD50: 94 mg/m ³ * Listed as Chromium(VI) compound, Group 1 (Carcinogenic to humans) ** Listed as Chromium(VI) compound						
Section 12	Ecological Information					
Toxicity to fish: LC Toxicity to daphnia Toxicity to algae: E Persistence and de Mobility in soil: No	C50 - Lepomis macrochirus - 0.1 and other aquatic invertebrat C50 - Pseudokirchneriella subc agradability: No data available o data available	31 mg/l - 96.0 h / mortality l es: mortality NOEC - Daphr apitata - 0.31 mg/l - 72 h Bioaccumulative po PBT and vPvB asses	NOEC - Pimephale nia - 0.016 - 0.064 tential: Oncorhyno ssment: No data a	s promelas (fa mg/l - 7 d / EC chus mykiss (r available	athead minnow) - 6 mg/l 50 - Daphnia magna (W ainbow trout) - 180 d / E	- 7.0 d Vater flea) - 0.035 mg/l - 48 h Bioconcentration factor (BCF): 17.4

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

Section 13 Disposal Considerations

Section 7

Handling & Storage

 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

 Section 14
 Transport Information (US DOT / CANADA TDG)

 UN/NA number:
 UN3086

 Shipping name:
 Toxic solids, oxidizing, n.o.s., (Potassium dichromate)

 Hazard class:
 6.1, (5.1)

 Packing group:
 I

 Reportable Quantity:
 4.54 Kg (10 Lbs)

 Marine pollutant:
 No

 Exceptions:
 No exceptions

 2012 ERG Guide # 141
 A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

ComponentTSCACERLCA (RQ)RCRA codeDSLNDSLWHMIS ClassificationPotassium dichromateListed10 lbs.Not listedListedNot listedC; D1A; D2A; D2BImage: Description of the second sec

Section 16 Additional Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Page E2 of E2

SDS No.: PP0530

Section 1 **Chemical Product and Company Information**

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300

For laboratory use only. Not for drug, food or household use.

ashua NH 03063 (800) 225-3739 POTASSIUM FERRICYANIDE Product

Synonyms Red Prussiate of Potash

Section 2

This substance or mixture has not been classified at this time according to the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals.

80 Northwest Blvd.

Hazards Identification

Signal word: WARNING Pictograms: GHS07 Target organs: None known



GHS Classification: Skin irritation (Category 2) Eye irritation (Category 2A) Aquatic toxicity, chronic (Category 3)

GHS Label information: Hazard statement(s):

H315: Causes skin irritation.

H319: Causes serious eye irritation. H412: Harmful to aquatic life with long lasting effects.

Precautionary statement(s):

P264: Wash hands thoroughly after handling.

P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P332+P313: If skin irritation occurs: Get medical attention. P337+P313: If eye irritation persists: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. Supplementary information: EUH032: Contact with acids liberates very toxic gas.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 **Composition / Information on Ingredients** Nommé Chimique # CAS % EINECS Potassium ferricyanide 13746-66-2 100% 237-323-3 Section 4 First Aid Measures

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 **Fire Fighting Measures**

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Dangerous when heated to decomposition or on contact with acids or acid fume, emits highly toxic fumes of hydrocyanic gas which can form explosive mixtures with air.

Accidental Release Measures Section 6

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for use if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from light, heat, acids and acid fumes.

Section 8	Exposure Controls / Personal Protection				
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
	Particulates not otherwise classified	None established.	TWA: 15 mg/m ³ total dust	None established.	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-

approved respirator.

Section 9 Physical & Chemical Properties						
Appearance: Solid, Bright orange-red crystals. Odor: No odor. Odor threshold: Data not available. pH: Data not available Melting / Freezing point: Data not available Boiling point: Decomposes Flash point: Data not available	Evaporation rate (=1): Not applicable Flammability (solid/gas): Not flammable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.85 @ 17°C Solubility(ies): 33 g/100 ml water @ 4°C	Partition coefficient: Data not available Auto-ignition temperature: Not applicable Decomposition temperature: $198.89^{\circ}C (390^{\circ}F)$ Viscosity: Data not available Molecular formula: $K_4Fe(CN)_6$ Molecular weight: 329.26				
Section 10 Stability & Reactivity						

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Protect from light, heat, acids and acid fumes.

Incompatibilities with other materials: Strong oxidizers, acids and acid fumes.

Hazardous decomposition products: Oxides of nitrogen, cyanide fumes.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 4520 mg/kg

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause irritation of the eyes, nose, and throat, coughing and choking.

Ingestion: Ingestion may cause irritation and nausea.

Skin: Repeated or prolonged contact may cause dermatitis.

Eyes: May cause mild irritation.

Signs and symptoms of exposure: Product is not decomposed to cyanide in the body. Rapidly excreted in the urine, apparently whithout metabolic alteration. Slight short tem irritation of the skin, eyes and mucous membranes is possible. Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: LJ8225000

Section 12

Toxicity to fish: No data available

ERG: Emergency Response Guidebook

Toxicity to daphnia and other aquatic invertebrates: No data available

Ecological Information

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 **Disposal Considerations**

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information

UN/NA number: Not a Hazard class: Not app Exceptions: Not appli	ipplicable Ship licable Pack cable 2012	ping name: ↑ ing group: ↑ ERG Guide #	Not Regulated lot applicable Not applicable	Reportable Qua	antity: No	Mari	ne pollutant: No
Section 15 Reg	ulatory Information						
A chemical is considered to be	listed if the CAS number for	the anhydrous forn	n is on the Inventory list.				
Component		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Potassium ferricyanide		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16 Add	ditional Information						
The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make indepen dent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program,							

IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure,

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	POTASSIUM FERROCYANIDE	
Synonyms	Yellow Prussiate of Potash	
Section 2	Hazards Identification	
This substand to the Globall Chemicals. Signal word: Pictograms: Target organs GHS Classific Skin irritation (Eye irritation (Aquatic toxicit) GHS Label inf H316: Causes H320: Causes H412: Harmful	ce or mixture has not been classified at this time according ly Harmonized System (GHS) of Classification and Labeling of WARNING None required s: None known cation: (Category 3) Category 2B) y, chronic (Category 3) formation: Hazard statement(s): a mild skin irritation. a eye irritation. I to aquatic life with long lasting effects.	 Precautionary statement(s): P264: Wash hands thoroughly after handling. P273: Avoid release to the environment. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313: If skin irritation occurs: Get medical attention. P337+P313: If eye irritation persists: Get medical attention. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations. Supplementary information: EUH032: Contact with acids liberates very toxic gas.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Nommé Chimique		# CAS	%	EINECS			
Potassium ferrocyanio	le	14459-95-1	100%	237-722-2			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES MILD SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Dangerous when heated to decomposition or on contact with acids or acid fume, emits highly toxic fumes of hydrocyanic gas which can form explosive mixtures with air.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Protect from light, heat, acids and acid fumes.

Section 8	Exposure Controls / Personal Protection					
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Potassium ferrocyanide	None established.	None established.	None established.		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties					
Appearance: Solid Odor: No odor. Odor threshold: D pH: Data not availa Melting / Freezing Boiling point: Data Flash point: Data	ppearance: Solid. Yellow, crystalline powder. Evaporation rate (=1): Data not available Partition coefficient: Data not available dor: No odor. Flammability (solid/gas): Data not available. Partition coefficient: Data not available dor threshold: Data not available. Explosion limits: Lower / Upper: Data not available Auto-ignition temperature: >400°C 752°F H: Data not available. Explosion limits: Lower / Upper: Data not available Decomposition temperature: >400°C 752°F H: Data not available. Vapor pressure (mm Hg): Data not available Viscosity: Data not available. leiting / Freezing point: >70°C (158°F) Vapor density (Air = 1): Data not available Molecular formula: K4Fe(CN)6•3H2O lish point: Data not available Solubility(ies): 28 g/100 ml in water. Molecular weight: 422.41						not available Data not available e: >400°C 752°F) e. N) ₆ •3H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoi Incompatibilities w Hazardous decom	: Stable d: Protect from light, heat, acids au vith other materials: Strong oxidiz position products: Oxides of nitro	Hazardo nd acid fumes. ers, acids and ogen, cyanide fi	acid fumes.	Will not occur.			
0	Table da sia di lafa madian						
Section 11	Ioxicological Information						
Skin corrosion/irri Serious eye damar Respiratory or skii Germ cell mutager Carcinogenity: Da NTP: No componer IARC: No componer OSHA: No componer OSHA: No componer OSHA: No componer STOT-single expose STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Inhalatic Ingestion: Ingestion Skin: Repeated or Eyes: May cause n Signs and sympto tem irritation of the Additional information	Acute toxicity: Oral-rat LD50: 3616 mg/kg Skin corrosion/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-sepeated exposure: Data not available STOT-sepeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation and cause irritation of the eyes, nose, and throat, coughing and choking. Ingestion: Ingestion may cause irritation and nausea. Skin: Repeated or prolonged contact may cause dermatitis. Eyes: May cause mild irritation. Signs and symptoms o						
Section 12	Ecological Information						
Toxicity to fish: No Toxicity to daphnia Toxicity to algae: N Persistence and do Mobility in soil: No Other adverse effe	Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.						
Section 13	Disposal Considerations						
These disposal guregulations may b	These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.						
Section 14	Transport Information						
UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No							
Section 15	Section 15 Regulatory Information						
A chemical is consider	ed to be listed if the CAS number for the	anhydrous form	is on the Inventory list.				
Compon	nent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Potassium ferrocyar	nide	Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	POTASSIUM HYDROGEN PHTHALATE	
Synonyms	Potassium Biphthalate; Potassium Acid Phthalate	
Section 2	Hazards Identification	
Section 2 This substa to the Globa Chemicals. Signal word Pictograms Target orga GHS Classi Acute toxicit GHS Label H303: May b	Hazards Identification Ince or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of d: WARNING :: No symbol required ns: None known fication: y, oral (Category 5) information: Hazard statement: be harmful if swallowed.	Precautionary statement: P312: Call a POISON CENTER or doctor if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Potassium hydrogen	phthalate	877-24-7	100%	212-889-4			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection					
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. V Odor: No odor. Odor threshold: Dat pH: 4.0 (0.05M aque Melting / Freezing po Boiling point: Data no Flash point: Data no	White, crystalline powder a not available. bus solution) sint: 295-300°C (563-572°F) not available t available	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density Relative densit Solubility(ies):	te (=1): Data not a solid/gas): Data not a s: Lower / Upper: D e (mm Hg): Data not (Air = 1): Data not av y (Specific gravity): Soluble in water.	vailable available. Jata not available available ailable 1.636	Partition co Auto-ignitio Decomposi Viscosity: Molecular f Molecular v	befficient: Data n on temperature: tion temperature Data not available ormula: C ₈ H ₅ KC veight: 204.23	ot available Data not available 2: Data not available. 3. 24
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable Excessive temperatures and	Hazardo	us polymerization:	Will not occur.			
Incompatible materi	als: Strong oxidizers,						
Hazardous decompo	osition products: Carbon oxic	es, potassium ox	ides.				
Section 11	Toxicological Information						
Acute toxicity: Oral Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component OSHA: No component OSHA: No component Reproductive toxici STOT-single expose STOT-repeated expo Aspiration hazard: Potential health effe Inhalation: Inhalation Ingestion: Ingestion Skin: Contact with sk Eyes: Contact with sk Eyes: Contact with sk Eyes: Contact with sk Signs and symptom not available. Exerci Additional informati	Acute toxicity: Oral-rat LD50: 3,200 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause respiratory irritation. Ingestion: Ingestion may cause nausea, vomiting, and diarrhea. Skin: Contact with skin may cause irritation. Eyes: Contact with eyes may cause irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available. Exercise appropriate procedures to minimize potential hazards.						
Section 12	Ecological Information						
Toxicity to fish: No Toxicity to daphnia Toxicity to algae: No Persistence and deg Mobility in soil: No Other adverse effect	Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.						
Section 13	Disposal Considerations						
These disposal guid regulations may be	delines are intended for the different. Dispose of in acc	disposal of catal ordance with all	log-size quantities o local, state and fed	only. Federal regulations or	ations may ap	oply to empty co a licensed chen	ntainer. State and/or local
Section 14	Transport Information (U	S DOT / CANAD	A TDG)				
UN/NA number:	Not applicable Shin	ning name: N	, lot Regulated				
Hazard class: No	t applicable Pack	ing group: N	ot applicable	Reportable Qua	antity: No	Mar	ine pollutant: No
Exceptions: Not	applicable 2012	ERG Guide #	Not applicable		•		•
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for	he anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Potassium hydrogen	ohthalate	Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16	Additional Information						
The information containe	d herein is furnished without warra	nty of any kind. Em	ployers should use this i	nformation only as a su	pplement to othe	r information gather	ed by them and must make indepen-

SDS No.: PP0570

Section 1

Chemical Product and Company Information

7°

80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

POTASSIUM HYDROXIDE Product Synonyms Caustic Potash ; Potassium Hydrate Section 2 **Hazards Identification** Signal word: DANGER Precautionary statement: Pictograms: GHS05 / GHS07 P260: Do not breathe dust Target organs: None known. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P310: Immediately call a POISON CENTER or doctor. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated **GHS Classification:** clothing. Rinse skin with water/shower. Acute tox. (Category 4) P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for Skin corr. (Category 1A) breathing P312: Call a POISON CENTER or doctor if you feel unwell. GHS Label information. Hazard statement: P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. H302: Harmful if swallowed. Remove contact lenses, if present and easy to do. Continue rinsing. H314: Causes severe skin burns and eye damage. P363: Wash contaminated clothing before reuse. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Potassium hydroxide		1310-58-3	100%	215-181-3		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection					
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Potassium hydroxide	STEL: C 2mg/m ³	None established	STEL: C 2mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties				
Appearance: Solid, white pellets. Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 361°C (682°F) Boiling point: 1320°C (2408°F) Flash point: Not flammable.	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): 1 mm @ 719°C Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.044 Solubility(ies): Complete in water.	Partition coefficient: Data not available. Auto-ignition temperature: Data not available. Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: KOH Molecular weight: 56.11			
Section 10 Stability & Reactivity					
Chemical stability: Stable Conditions to avoid: Excessive temperatures which	Hazardous polymerization: Will not occur. th cause evaporation.				
Incompatible materials: Acids, aluminum, halogen	s, nitro compounds, organic materials, acid chlorides, acid ar	iydrides, magnesium, copper, tin and zinc.			
Hazardous decomposition products: Hydrogen gas in contact with metals.					
Section 11 Toxicological Information					
Acute toxicity: Oral-rat LD50: 365 mg/kg (IUCLID dataset) Skin corrosion/irritation: Skin-rabbit - Corrosive Serious eye damage/irritation: Eyes-rabbit - Corrosive Respiratory or skin sensitization: Data not available					

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: May be harmful by inhalation.

Ingestion: Harmful by ingestion.

Skin: Contact with skin causes burns.

Eyes: Contact causes damage.

Signs and symptoms of exposure: Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.

Additional information: RTECS #: TT2100000

Section 12 **Ecological Information** Toxicity to fish: Gambus affinis (fish, fresh water), LC50 = 85 mg/l/24 hours Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: UN1813 Shipping name: Potassium hydroxide, solid Reportable Quantity: 1,000 lbs (454 kg) Hazard class: 8 Packing group: || Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 Kg 2012 ERG Guide # 154 Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL NDSL WHMIS Classification Component TSCA CERLCA (RQ) RCRA code E; D1B Potassium hydroxide Listed Listed D002, D003 Listed Not listed Section 16 **Additional Information**

SDS No.: PP0610

Section 1

Product Synonyms **Chemical Product and Company Information**

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

Scientific (800) 225-3739

None

Section 2 Hazards Identification

POTASSIUM IODIDE

This substance or mixture has not been classified as hazardous according to the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals.

Signal word: WARNING Pictograms: GHS07 Target organs: Thyroid



GHS Classification: Acute toxicity, oral (Category 5) Skin sensitization (Category 1A)

GHS Label information: Hazard statement:

H303: May be harmful if swallowed. H317: May cause an allergic skin reaction.

Precautionary statement: P261: Avoid breathing dust.

P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P333+P313: If skin irritation or rash occurs: Get medical attention. P312: Call a POISON CENTER or doctor if you feel unwell. P362+P364: Take off contaminated clothing and wash it before reuse. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		_
Potassium iodide		7681-11-0	100%	231-659-4		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Contact with strong oxidizers may cause fire or explosion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dust. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection				
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
	Particulates not otherwise classified	None established	TWA: 15 ppm total dust	None established	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, white crystals. Odor: No odor. Odor threshold: Data not available. pH: 7.0 Melting / Freezing point: 680°C (1256°F) Boiling point: 1330°C (2426°F) Flash point: Non-combustible	Evaporation rate (= 1): Not applicable Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): Data not available Relative density (Specific gravity): 3.12 Solubility(ies): Complete in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: KI Molecular weight: 166.01

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Protect from light, air, moisture and excessive temperatures.

Incompatible materials: Reacts violently with alkaline metals, diazonium salts, oxidants, bromine and chlorine trifluorides, and fluorine perchlorate, and may cause explosion and/or fire. NOTE: Solutions of this product are corrosive to most metals.

Hazardous decomposition products: Yields iodine when in contact with air. Releases iodine, potassium monoxide, and hydrogen iodide, when in contact with moist air.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 4800 mg/kg

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: May cause irritation of respiratory tract.

Ingestion: Large doses may cause gastrointestinal upset and weakness.

Skin: May cause mild irritation and redness on prolonged contact.

Eyes: Can be irritating with redness and pain.

Signs and symptoms of exposure: Hypothyroidism with possibility of goitre (hypertrophy of the throid gland), possible sensitization of skin. Chronic ingestion of iodides may produce "iodism" which may be characterized by skin rash, running nose, headache, and irritation of mucous membranes. Weakness, anemia, loss of weight, and general depression may also occur. Additional information: RTECS #: NN1575000

Section 12 **Ecological Information** Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No 2012 ERG Guide # Not applicable Exceptions: Not applicable Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL WHMIS Classification RCRA code NDSL Component TSCA CERLCA (RQ) Potassium iodide Listed Not listed Not listed Listed Not listed D2A

Section 16 Additional Information

Section 1 Chemical P	Product and Company Information	Page E1 of E2
Scientific 80 North scientific (800) 22	hwest Blvd. , NH 03063 25-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product POTASSIUM NITRAT	E	
Synonyms Potash Nitrate / Salt	peter	
Section 2 Hazards Ide	entification	
Signal word: DANGER Pictograms: GHS03 / GHS07 Target organs: Red blood cells GHS Classification: Oxidizing solid (Category 2) Skin irritation (Category 2) Eye irritation (Category 2B) STOT-SE (Category 3) GHS Label information: Hazard st H272: May intensify fire; oxidizer. H315: Causes skin irritation. H319: Causes serious eye irritation. H335: May cause respiratory irritation	atement: m.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles/reducing agents. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P370+P378: In case of fire: Use water to extinguish. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P32+P313: If skin irritation occurs: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Potassium nitrate		7757-79-1	100%	231-818-8	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Not combustible but enhances combustion of other substances. Risk of fire and explosion on contact with reducing agents.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection				
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
Exposure Linnes.	Potassium nitrate	Not established	Not established	Not established	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	erties					
Appearance: Solid. Odor: No odor. Odor threshold: Da pH: Data not availab Melting / Freezing p Boiling point: 400°(Flash point: Not flar	White crystals or prills ta not available. le. oint: 333°C (631°F) C (752°F) nmable	Evaporation rate (= 1): Data not available Partition coefficient: Data not available Flammability (solid/gas): Data not available. Partition coefficient: Data not available Explosion limits: Lower / Upper: Data not available. Auto-ignition temperature: Data not available Vapor pressure (mm Hg): Negligible Decomposition temperature: Data not available. Vapor density (Air = 1): 3.0 Molecular formula: KNO3 Relative density (Specific gravity): 2.1 Molecular weight: 101.11					
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable : Excessive temperatures, heat,	Hazardo sparks, open fl	ous polymerization: ame and other sources	Will not occur. s of ignition.			
Incompatible mater	ials: Heavy metals, phosphites,	organic compou	unds, carbonaceous m	aterials, strong acids	s and many ot	her materials.	
Hazardous decomp	osition products: Nitrogen oxid	es and toxic me	etal fumes.				
Section 11	Toxicological Information						
Serious eye damag Respiratory or skin Germ cell mutageni Carcinogenity: Dat NTP: No component IARC: No componen OSHA: No componen Reproductive toxici STOT-single exposi STOT-repeated exp Aspiration hazard: Potential health effi Inhalation: Inhalation Ingestion: Ingestion Skin: Contact with s Eyes: Contact with s Eyes: Contact with o Signs and symptom observation is indica	e/irritation: Data not available e/irritation: Data not available sensitization: Data not availab icity: Data not available a not available of this product present at levels int of this product present at levels int of this product present at level ity: Data not available ure: Data not available Data not available Data not available ects: in causes cough, sore throat. causes abdominal pain, blue lips kin causes redness. eyes causes redness and pain. ins of exposure: Ingestion could ted. Exercise appropriate proced	greater than or o greater than or s greater than o , fingernails and cause effects o ures to minimize	equal to 0.1% is identif equal to 0.1% is ident r equal to 0.1% is iden d skin, dizziness, labor on the blood. This may e potential hazards.	ied as a known or an fied as probable, po tified as a carcinoge ed breathing, confus result in formation o	nticipated caro ssible or confi en or potential ion, convulsion	tinogen by NTP. rmed human carcir carcinogen by OSF ns, diarrhea, heada lobin. The effects r	nogen by IARC. IA. ache, nausea, unconsciousness nay be delayed. Medical
Section 12	Ecological Information						
Toxicity to fish: Pou Toxicity to daphnia Toxicity to algae: No Persistence and de Mobility in soil: No Other adverse effect Section 13	ecilia reticulata (fish, fresh water) and other aquatic invertebrate o data available gradability: No data available data available ts: An environmental hazard can Disposal Considerations	, LC50 = 1378 i s: Daphnia mag Bioaccum PBT and v nnot be exclude	ng/L/96 hours gna (Crustacea), TLm = ulative potential: No PvB assessment: No d in the event of unpro	= 39 mg/L/96 hours data available o data available fessional handling o	r disposal.		
These disposal gui	delines are intended for the d	sposal of cata	alog-size quantities o	nly. Federal regulations or	ations may a	apply to empty con	ntainer. State and/or local
Section 14	Transport Information (US	DOT / CANA	DA TDG)		contract with	ra licensed chen	lical disposal agency.
UN/NA number:	UN1486 Shipping n	ame: Potas	sium nitrate				
Hazard class: 5.7 Exceptions: Lim	Packing gr ited quantity equal to or less	oup: III than 5 Kg	Reporta 2012 EF	able Quantity: National Nati National National Natio National National Nati	0	Mar	ine pollutant: No
Section 15	Regulatory Information						
A chemical is considered	d to be listed if the CAS number for th	e anhydrous form	is on the Inventory list.		501	NDO	
Dotoooium nitroto	enit	ISUA			Liotod	NUSL	
		Listed	NULIISLEU	DUUT	LISIEU	INOL IISLEU	<u>ب</u>
Section 16	Additional information						

SDS No.: PP0700

Section 1	Chemical Product and Company Information	
sciel	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product POTA	ASSIUM PERMANGANATE	
Synonyms Charr	neleon Mineral	
Section 2	Hazards Identification	
Signal word: DAN Pictograms: GHSC Target organs: No GHS Classification Oxidizing solid (Cate Acute toxicity, inges Aquatic acute (Cate Aquatic chronic (Cate HS Label informa H272: May intensify H302: Harmful if swi H400: Very toxic to a H410: Very toxic to a	GER 03 / GHS07 / GHS09 ne known	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles/acids/oxidizers. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P370+P378: In case of fire: Use water to extinguish. P391: Collect spillage. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Potassium permanga	nate	7722-64-7	100%	231-760-3	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Powerful oxidizing material, will accelerate burning when involved in a fire. Explosive in contact with sulfuric acid or hydrogen peroxide. May react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Spontaneously flammable on contact with glycerin or ethylene glycol.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection				
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
	Manganese and inorganic compounds, as Mn	TWA: 0.2 mg/m ³ (A4)	STEL: C 5 mg/m ³	TWA: 1 mg/m ³ / STEL: 3 mg/m ³	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, shiny, dark purple crystals. Odor: No odor. Odor threshold: Data not available. pH: 7-9 (20 g/L water) Melting / Freezing point: Decomposes Boiling point: Decomposes Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): 5.47 Relative density (Specific gravity): 2.7032 @ 25°C Solubility(ies): 6.5 g/100 ml water @ 20°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: 150°C (302°F) Viscosity: Data not available. Molecular formula: KMnO ₄ Molecular weight: 158.04

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Avoid exposure to incompatible materials and excessive temperatures.

Incompatible materials: Alcohols, arsenites, bromides, iodides, charcoal, hydrochloric acid, organic materials, ferrous or mercurous salts, hypophosphites, hyposulfites, sulfites, peroxides, oxalates, strong reducing agents, strong acids, formaldehyde, ethylene glycol, combustible organics, metal powders.

Hazardous decomposition products: Oxygen, oxides of potassium, oxides of manganese.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 750 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may cause burning sensation, cough, sore throat, shortness of breath, labored breathing. Symptoms may be delayed. Ingestion: Ingestion causes burning sensation, abdominal pain, diarrhea, nausea, vomiting, shock or collapse. Skin: Contact with skin causes redness, burns and pain. Eyes: Contact with eyes causes redness, pain and severe deep burns. Signs and symptoms of exposure: See Potential health effects above. Additional information: RTECS #: SD6475000 Section 12 Ecological Information Toxicity to fish: Gambusia affinis (fish, fresh water), LC100 = 18 mg/L/24 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC0 = >0.63 mg/L Toxicity to algae: Anabaena sp. (Algae), EC50 = <0.5 mg/L/18 days/growth rate Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: UN1490 Shipping name: Potassium permanganate Reportable Quantity: 100 lbs (45.4 kg) Hazard class: 5.1 Packing group: || Marine pollutant: No 2012 ERG Guide # 140 Exceptions: Limited quantity equal to or less than 1 Kg Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL WHMIS Classification RCRA code NDSL Component TSCA CERLCA (RQ) Potassium permanganate Listed 100 lbs (45.4 kg) D001 Listed Not listed C : E Section 16 **Additional Information**

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	POTASSIUM SULFATE, ANHYDROUS	
Synonyms	Sal Polychrestum	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label Precautiona	ance or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of d: None required :: No symbol required ins: None known fication: None required information: Hazard statement: None required ary statement: None required	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Potassium sulfate		7778-80-5	100%	231-915-5				
Section 4	First Aid Measures							

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Potassium sulfate	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	perties					
Appearance: Solid Odor: No odor Odor threshold: D pH: Data not availa Melting / Freezing Boiling point: 1063 Flash point: Not ap	. White crytalline powder ata not available ble point: 1689°C (3072°F) 7°C (1953°F) pplicable	Evaporation r Flammability Explosion lim Vapor pressu Vapor density Relative dens Solubility(ies)	rate (=1): Data not a (solid/gas): Data not its: Lower / Upper: I re (mm Hg): Negligibl / (Air = 1): Data not av ity (Specific gravity):): 12 g/100 ml H ₂ O @	available available. Data not available e railable 2.662 @ 20°C 20°C	Partition cd Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data r on temperature: ition temperature Data not available formula: K ₂ SO ₄ weight: 174.27	not available Data not available e: Data not available. e.
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoi	Stable d: Protect from moisture.	Hazard	ous polymerization:	Will not occur.			
Incompatible mate	rials: Active metals, including a	luminum and ma	ignesium.				
Hazardous decom	position products: Sulfur oxide	es and potassium	1.				
Section 11	Toxicological Information	ı					
Acute toxicity: Oral-rat LD50: 6,600 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Oracinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available. Exercise appropriate procedures to minimize potential hazards. Addition of the fore							
Section 12	Ecological Information						
Toxicity to fish: Lepomis macrochirus (fish, fresh water), LC50 = 653-796 mg/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC100 = 1205 mg/L/24 hours Toxicity to algae: Chlorella vulgaris (Algae), PGR98%: 1480-1804 mg/L/30 day] Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and VPVB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal gur regulations may b	idelines are intended for the e different. Dispose of in acc	disposal of cata cordance with a	alog-size quantities of Il local, state and fed	only. Federal regulations or	ations may a contract with	pply to empty co a licensed cher	ntainer. State and/or local nical disposal agency.
Hazard class: N Exceptions: No	Not applicableShipot applicablePaclt applicable2012	king group: N ERG Guide #	Not Regulated Not applicable Not applicable	Reportable Qua	ntity: No	Mar	rine pollutant: No
Section 15	Regulatory Information						
A chemical is consider	ed to be listed if the CAS number for	the anhydrous form	n is on the Inventory list.	PCPA code	ופי	NDSI	WILMIS Classification
	ent	Listad	Not listed	Not listed	Listed	Not listed	
r otassium sunate		LISIEU	NUL IISLEU	INOL IISLEU	LISIEU	INULIISLEU	Uncontrolled product
Section 16	Additional Information						
The information contai	nod horoin in furnished without warr	anty of any kind E	mployers should use this i	nformation only as a su	polement to othe	ar information gather	red by them and must make indeper

tion only as a s dent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	POTASSIUM THIOCYANATE	
Synonyms	Thiocyanic Acid, Potassium Salt / Potassium Sulfocyanate / Potassium	n Rhodanide
Section 2	Hazards Identification	
Signal word Pictograms: Target organ GHS Classif Acute toxicity Acute toxicity Acute toxicity Aquatic chro GHS Label i H302: Harmi H312: Harmi H312: Harmi H312: Harmi H312: Harmi H312: Co	I: WARNING : GHS07 ns: Central nervous system, Cardiovascular system, Thyroid	 Precautionary statement: P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330: IF SWALLOWED: Rinse mouth. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P362+P364: Take off contaminated clothing and wash it before reuse. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 Composition / Information on	Composition / Information on Ingredients							
Chemical Name	CAS #	%	EINECS		_			
Potassium thiocyanate	333-20-0	100%	206-370-1					
Section 4 First Aid Measures								

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Violent reactions have occurred when mixed with chlorates, nitrates and peroxides. Emits highly toxic fumes of cyanides upon decomposition.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Potassium thiocyanate	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

- FF								
Section 9	Physical & Chemical Prop	erties						
Appearance:Solid. White crystalsEvaporation rate (=1):Data not availablePartition coefficient:Data not availableOdor:No odorFlammability (solid/gas):Data not availableAuto-ignition temperature:Data not availableOdor threshold:Data not available.Explosion limits:Lower / Upper:Data not availableDecomposition temperature:Data not availablepH:5-7 (50 g/L)Vapor pressure (mm Hg):NegligibleViscosity:Data not available.Melting / Freezing point:173°C (343°F)Relative density (Specific gravity):1.886Molecular formula:KSCNBoiling point:Not flammableSolubility(ies):177 g/100 ml in water.Molecular weight:97.18						ot available Data not available 2: Data not available. 2.		
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid Incompatible mater Hazardous decomp sulfide may form upo	Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures and formation of dust. Incompatible materials: Strong oxidizers and acids. Hazardous decomposition products: Ammonia, hydrogen sulphide, carbonyl sulphide, nitric oxides, sulfur oxides, hydrocyanic acid, thiourea. Sulfide may form upon reaction with strong acids. Carbon disulfide is very reactive and may react violently with oxidizing agents causing fire or explosion.							
Section 11	Toxicological Information							
Acute toxicity: Ora Skin corrosion/irrit Serious eye damag Respiratory or skin Germ cell mutagen Carcinogenity: Da NTP: No componen IARC: No componen OSHA: No componen Reproductive toxic STOT-single expos STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: Causes Ingestion: Causes of Skin: Contact with s Eyes: Contact with Signs and symptor not available. Exerco	Acute toxicity: Oral-rat LD50: 854 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Causes congling. Ingestion: Causes confusion, convulsions, nausea, vomiting, weakness. Skin: Contact with skin may cause irritation on prolonged contact. Eyes: Contact with eyes cause irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is							
Section 12	Ecological Information							
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
These disposal gu	idelines are intended for the	disposal of cata	alog-size quantities of	only. Federal regul	ations may a	pply to empty co	ntainer. State and/or local	
regulations may be	e different. Dispose of in acc	ordance with al	l local, state and feo	leral regulations or	contract with	n a licensed chem	nical disposal agency.	
Section 14	Transport Information (U	S DOT / CANAI	DA TDG)					
UN/NA number: Hazard class: N Exceptions: No	UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No							
Section 15	Regulatory Information	bo ophydraus f	is on the Inventory P-t					
	ent	TSCA	CERLCA (RO)	RCRA code	DSL	NDSL	WHMIS Classification	
Potassium thiocyana	ite	Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product	
Castion 40								

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SALICYLIC ACID	
Synonyms	2-Hydroxybenzoic acid	
Section 2	Hazards Identification	
Signal word Pictograms: Target organ	: WARNING GHS07 s: Central nervous system, Kidneys, Pancreas ication: <i>y</i> , oral (Category 4) (Category 2B) ategory 3) nformation: Hazard statement: ul if swallowed. Is serious eye irritation. ause respiratory irritation.	 Precautionary statement: P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Salicylic acid		69-72-7	100%	200-712-3			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Dusts may form flammable and explosive mixtures in air.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources. Light sensitive. Protect from light and moisture.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Salicylic acid	Not listed	Not listed	Not listed			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Phy	sical & Chemical Prop	perties						
Appearance: Solid. White, Odor: No odor. Odor threshold: Data not pH: 2.4 Melting / Freezing point: Boiling point: 211°C (412° Flash point: 157°C (315°F	crystalline powder. available. 158-160°C (316-320°F) °F) ⁻)	Evaporation Flammability Explosion lin Vapor pressu Vapor density Relative dens Solubility(ies	rate (Butyl acetate = 1) (solid/gas): Data not a nits: Lower: Ca. 1.1% re (mm Hg): 1 mm @ (Air = 1): 4.8 sity (Specific gravity):): Slightly soluble in wa	: <1 available. @ 20°C Upper: N/ 114°C 1.443 (20°/4°) ter.	Partition of Auto-ignit A Decompose Viscosity: Molecular Molecular	coefficient: Data n ion temperature: sition temperature Data not available formula: C ₇ H ₆ O ₃ weight: 138.12	ot available 540°C (1004°F) £ 540°C (1004°F) £	
Section 10 Stat	bility & Reactivity							
Chemical stability: Stable Conditions to avoid: Exce Incompatible materials: S Hazardous decomposition	Chemical stability: Stability: Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures and heat. Light and moisture sensitive. Incompatible materials: Strong oxidizers, iron salts, spirit nitrous ether, lead acetate and iodine. Hazardous decomposition products: Oxides of carbon and phenol.							
Section 11 Tox	icological Information							
Acute toxicity: Oral-rat LE Skin corrosion/irritation: Serious eye damage/irrita Respiratory or skin sensi Germ cell mutagenicity: I Carcinogenity: Data not a NTP: No component of this IARC: No component of this OSHA: No component of thi OSHA: No component of the Reproductive toxicity: Da STOT-single exposure: T STOT-repeated exposure: Aspiration hazard: Data r Potential health effects: Inhalation: Inhalation cause Ingestion: Ingestion causes hearing difficulty, visual dist CNS disturbances such as Skin: Contact causes serve Signs and symptoms of e Additional information: F	Section 11 Toxicological Information Acute toxicity: Oral-rat LD50: 891 mg/kg ; Inhalation-rat LC50: 0.9 mg/L/1 hour Skin corrosion/irritation: Skin-rabbit - draize test 500 mg/24H - Mild irritant Serious eye damage/irritation: Eyes-rabbit - draize test 500 mg/24H - Mild irritant Serious eye damage/irritation: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects. STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation causes irritation of the mucous membrane and upper respiratory tract. Ingestion: Ingestion causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause 'salicylism', characterized by headache, dizziness, ringing in the ears, hearing difficulty, visual disturbance, mental confusion, drowsiness, sweating, thirst, hyperventilation, nausea, vomiting and diarrhea. Severe salicylate intoxication may cause CNS disturbances such as convulsions and coma. skin eruptions, and alteration in the acid-base balance. <t< td=""></t<>							
Section 12 Eco	logical Information							
Toxicity to fish: Leuciscus idus (fish, fresh water), LC50 = 90 mg/L/48 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 230 mg/L/24 hours Toxicity to algae: Haematococcus pluvialis (Algae), EC10 = 165 mg/L/4 hours Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13 Dis	posal Considerations							
These disposal guideline regulations may be differ	es are intended for the crent. Dispose of in acco	disposal of cat ordance with a	alog-size quantities o Ill local, state and fed	nly. Federal regul eral regulations or	ations may a contract with	apply to empty co h a licensed chem	ntainer. State and/or local nical disposal agency.	
Hazard class: Not app Exceptions: Not appli	licable Ship cable Pack	ting group:	Not applicable ¥ Not applicable	Reportable Qua	antity: No	Mar	ine pollutant: No	
Section 15 Reg	ulatory Information							
A chemical is considered to be	listed if the CAS number for t	the anhydrous for	m is on the Inventory list.					
Component		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	

Section 16 **Additional Information**

Salicylic acid

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook

Not listed

Listed

Not listed

Listed

Not listed

D2A

Section 1	Chemical Product and Company Information	
SC SC	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product SIL	LVER NITRATE	
Synonyms Silv	ver(I) Nitrate	
Section 2	Hazards Identification	
Signal word: DA Pictograms: GH Target organs: H Construction GHS Classificati Ox. Sol. (Categor Skin Corr. (Categor Aquatic Acute (Ca Aquatic Chronic (GHS Label inform H272: May intense H314: Causes se H410: Very toxic to	ANGER HS03 / GHS05 / GHS09 Kidneys, Liver, Eyes, Skin	 Precautionary statement(s): P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P220: Store away from clothing and combustible materials. P221: Take any precaution to avoid mixing with combustibles. P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P310: Immediately call a POISON CENTER or doctor. P301+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P370+P378: In case of fire: Use water to extinguish. P391: Collect spillage. P405: Store locked up. H501: Dispose of contents/container to a licensed chemical disposal agency in accordance with all local, state and federal regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Silver nitrate		7761-88-8	100%	231-853-9		
Section 4	First Aid Measures					

INGESTION: MAY BE FATAL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CONTACT CAUSES CORNEAL DAMAGE OR BLINDNESS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CONTACT CAN CAUSE BURNS. Remove contaminated clothing. Flush thoroughly with mild scap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance is a strong oxidizer which releases oxygen on heating. The oxygen will intensify any fire in the immediate surroundings.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area. Keep away from ignition sources. Store in resistant containers. Do not store in wooden, cardboard or paper containers. Store away from flammable and combustible materials.

Section 8	Exposure Controls / Personal Protection				
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
	Silver, soluble compounds, as Ag	TWA: 0.01 mg/m ³	TWA: 0.01 mg/m ³	TWA: 0.01 mg/m ³	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, white crystals. Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 212°C (>413°F) Boiling point: Decomposes Flash point: Data not available	Evaporation rate (= 1): Not applicable Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): 5.8 Relative density (Specific gravity): 4.35 Solubility(ies): +/- 10% in water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: 444°C (>831°F) Viscosity: Not applicable Molecular formula: AgNO ₃ Molecular weight: 169.87
Section 10 Stability & Reactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition.

Incompatible materials: Combustible materials, reducing agents, organic substances, strong basis and alkalis.

Hazardous decomposition products: Nitrogen oxides.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 1,173 mg/kg ; Dermal-guinea pig LD50: >216 mg/kg Skin corrosion/irritation: Human - Corrosive Serious eye damage/irritation: Rabbit - Corrosive Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation of dust will produce irritation to gastrointestinal or respiratory tract, characterized by burning, sneezing, and coughing. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Ingestion: Poisonous if swallowed. Ingestion causes severe gastroenteritis.

Skin: Contact with skin can produce inflammation and blistering.

Eyes: Contact with eyes may cause corneal damage or blindness.

Signs and symptoms of exposure: Irritation of upper respiratory tract. Skin irritation or burns. Severe irritation or burns to eyes.

Additional information: RTECS #: VW4725000

Section 12 Ecological Information

	loological information			
Toxicity to fish: Oncor	hynchus mykiss (fish, fresh water),	LC50 = 0.0086 mg/l/9	96 hours	
Toxicity to daphnia an	d other aquatic invertebrates: Day	ohnia magna (Crusta	cia), EC50 = 0.0006 mg/l/48 hours	
Toxicity to algae: Chlor	rella vulgaris (Algae), EC50 = Ca. 0	1 mg/l/14 day - grow	th rate	
Persistence and degra	dability: No data available E	ioaccumulative pot	ential: No data available	
Mobility in soil: No da	ta available F	BT and vPvB asses	sment: No data available	
Other adverse effects:	An environmental hazard cannot b	e excluded in the eve	ent of unprofessional handling or disposal.	
Section 13	Disposal Considerations			
These disposal guide regulations may be di	lines are intended for the dispos fferent. Dispose of in accordance	al of catalog-size q æ with all local, sta	uantities only. Federal regulations may apply to e te and federal regulations or contract with a licens	mpty container. State and/or local ed chemical disposal agency.
Section 14	ransport Information			
UN/NA number: UN	V1493 Shipping name	: Silver nitrate		
Hazard class: 5.1	Packing group:	11	Reportable Quantity: > 1 lbs (0.454 kg)	Marine pollutant: No
Exceptions: Limite	d quantity equal to or less than	0.453 Kg	2012 ERG Guide # 140	
Section 15	Pequilatory Information			

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Silver nitrate Listed Listed D001, D011 Listed Not listed C ; E

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM METAL, LUMPS	
Synonyms	Natrium	
Section 2	Hazards Identification	
Signal word Pictograms: Target organ GHS Classif Water reactiv Skin corrosiv GHS Label in H260: In con spontaneous H314: Cause Supplement EUH014: Rea	 DANGER GHS02 / GHS05 ns: Eyes, Skin, Respiratory system is: Category 1 ity (Category 1) ity (Category 1) ity (Category 1B) nformation: Hazard statement: tact with water releases flammable gases which may ignite day. as severe skin burns and eye damage. ity information: acts violently with water. 	 Precautionary statement: P223: Do not allow contact with water. P231+P232: Handle under inert gas. Protect from moisture. P260: Do not breathe dust or vapours. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor. P363: Wash contaminated clothing before reuse. P370+P378: In case of fire: Use dry chemical, soda ash, lime or sand to extinguish. P402+P404: Store in a dry place. Store in a closed container. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Sodium - immersed ir	ı mineral oil	7440-23-5	100%	231-132-9	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone and dry graphite. DO NOT USE WATER! Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Sodium reacts with water to release hydrogen gas. May ignite spontaneously in moist air or oxygen. To prevent ignition, soak product with mineral oil.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts or vapors. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources. Keep away from water and moisture.

Section 8	Exposure Controls / Personal Protection				
Exposure Limitor	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	
Exposure Linits.	Sodium	Not established	Not established	Not established	

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. **Respiratory protection:** Work in fume hood or wear a NIOSH/MSHA-approved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid. Silvery-white metal lumps. Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 88°C (208°F) Bolling point: 881°C (1619°F) Flash point: 4°C (39°F)	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): 1.2 mm @ 440°C Vapor density (Air = 1): Data not available Relative density (Specific gravity): 0.97 g/cm Solubility(ies): Violently soluble in water.	Partition coefficient: Data not available Auto-ignition temperature: 121°C (250°F) Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Na Molecular weight: 22.99
Section 10 Stability & Reactivity		

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Water, air, heat, sparks and/or flame.

Incompatible materials: Water, moist air, acids, carbon dioxide, chlorinated hydrocarbons, metallic halides, ammonium iodide, bromide, ammonium, carbon disulphide, charcoal, chlorine and chlorine compounds, oxidizing agents.

Hazardous decomposition products: Water causes violent decomposition with evolution of flammable hydrogen gas.

Section 11 Toxicological Information

Acute toxicity: Inhalation-rat ED50: 510 ppm / 2 hours Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation causes cough, sore throat, burning sensation. Ingestion: Ingestion causes burning sensation, shock or collapse Skin: Contact with skin causes pain, blisters, serious burns. Eyes: Contact with eyes severe deep burns, loss of vision. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: VY0686000 Section 12 **Ecological Information** Toxicity to fish: Gasterosteus aculeatus (fish, estuary, marine) <4720 mg/L Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG) UN/NA number: UN1428 Shipping name: Sodium Hazard class: 4.3 Packing group: | Reportable Quantity: 10 lbs (4.54 kg) Marine pollutant: No 2012 ERG Guide # 138 **Exceptions:** No exceptions Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification DSL NDSL Component TSCA CERLCA (RQ) RCRA code Sodium Listed 10 lbs (4.54 kg) D001, D002, D003 Listed Not listed B6 : E Section 16 **Additional Information**
Section 1 C

Chemical Product and Company Information

80 Northwest Blvd.

ashua, NH 03063

Page E1 of E2

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

	SCIENTINC (800) 225-3739	
Product	SODIUM ACETATE, TRIHYDRATE	
Synonyms	None	
Section 2	Hazards Identification	
OSHA Haza Signal word Pictograms Target orga	ards: No known OSHA hazards. d: WARNING :: No symbol required ins: None known	Precautionary statement: P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
GHS Classi Acute toxicit Acute toxido Skin irritation Eye irritation	fication: y, oral (Category 5) city, inhalation (Category 5) n (Category 3) n (Category 2B)	
GHS Label H303: May b H333: May b H316: Cause H320: Cause	information: Hazard statement: be harmful if swallowed. be harmful if inhaled. es mild skin irritation. es eye irritation.	

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Sodium acetate		6131-90-4	100%	204-823-8 (anhydrous)			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALTED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Sodium acetate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	operties					
Appearance: Solid, V Odor: Slight acetic ad Odor threshold: Data pH: 8.9 (0.1M solution Melting / Freezing po Boiling point: 122.7 ^c Flash point: Data no	Vhite crystalline powder. cid odor. a not available. n) int: 57.7°C (136°F) C (253°F) t available	Evaporation ra Flammability (Explosion limi Vapor pressure Vapor density Relative densit Solubility(ies):	te (= 1): Data not a solid/gas): Data not a ts: Lower / Upper: D e (mm Hg): Data not a (Air = 1): Data not av ty (Specific gravity): 125 g/100 ml in wate	vailable available. Data not available available ailable 1.45 r.	Partition co Auto-ignitio Decompos Viscosity: Molecular Molecular	oefficient: Data n on temperature: ition temperature Data not available formula: NaC ₂ H ₃ weight: 136.08	ot available 599°C (1110°F) :: Data not available :. O2•3H2O
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid:	Stable Exposure to moist air or wat	Hazardo er.	us polymerization: \	Will not occur.			
Incompatible materia	als: Oxidizing and reducing a	agents may destroy	colors.				
Hazardous decompo	osition products: Carbon ox	ides.					
Section 11	Toxicological Informatio	n					
Acute toxicity: Oral-rat LD50: 3530 mg/kg [Sodium acetate, anhydrous] Skin corrosion/irritation: Skin-rabbit - 500 mg / irritating [Sodium acetate, anhydrous] Serious eye damage/irritation: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause irritation to respiratory tract. Ingestion: Ingestion may cause irritation. Eyes: Contact with skin may cause irritation. Eyes: Contact with eyes may cause irritation.							
Section 12	Ecological Information						
Toxicity to fish: Brachydanio rerio (fish, fresh water), LC0: ≥100 mg/L/96 hours [Sodium acetate, anhydrous] Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50: >1000 mg/L/48 hours [Sodium acetate, anhydrous] Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations	5					
These disposal guid regulations may be	lelines are intended for the different. Dispose of in ac	e disposal of cata cordance with all	log-size quantities o local, state and fed	nly. Federal regu eral regulations or	lations may a r contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (US DOT / CANAL	DA TDG)				
UN/NA number: Hazard class: No	Not applicable Shi t applicable Pac	pping name: N king group: N	lot Regulated ot applicable	Reportable Qu	antity: No	Mar	ine pollutant: No
Exceptions: Not	Applicable 201	2 ERG Guide #	Not applicable				
A chemical is considered	to be listed if the CAS number for	r the anhydrous form	is on the Inventory list				
Componei	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium acetate		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM BICARBONATE, ANHYDROUS	
Synonyms	Baking Soda / Sodium Hydrogen Carbonate / Carbonic Acid Sodium (1:1)	
Section 2	Hazards Identification	
This substa to the Globa Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label i	ance or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of 4: Not classified 5: Not classified 5: Not classified 5: Not classified 6: Information: Hazard statement(s): Not classified 6: Information: Hazard statement(s): Not classified	Precautionary statement(s): Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Sodium bicarbonate		144-55-8	100%	205-633-8		
Section 4	First Aid Measures					

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material is commonly used to extinguish fires.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

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Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Store away from acids.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Sodium bicarbonate	None established	None established	None established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties						
Appearance:Solid, white crystalline powder.Odor:No odor.Odor threshold:Data not available.pH:8.2 (1% solution)Melting / Freezing point:Data not availableBoiling point:DecomposesFlash point:Non combustible	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Negligible Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.16 @ 20°C Solubility(ies): 8.6 g/100 ml water at 20°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: NaHCO ₃ Molecular weight: 84.01				

Section 10 Stability & Reactivity

Chemical stability: Stable

ERG: Emergency Response Guidebook

Hazardous polymerization: Will not occur.

Conditions to avoid: High temperature causes decomposition to sodium carbonate, water and carbon dioxide.

Incompatible materials: Reacts with acids to yield acid salts, water and carbon dioxide.

Hazardous decomposition products: Gaseous carbon dioxide.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 4220-4400 mg/kg Skin corrosion/irritation: Skin-rabbit - not irritating Serious eye damage/irritation: Eye-rabbit - not irritating Respiratory or skin sensitization: Non sensitizing Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Excessive dust may irritate respiratory tract. Ingestion: Ingestion may cause gastrointestinal disturbance if ingested. Skin: No hazard known. Eyes: Contact with eyes may cause very slight irritation. Signs and symptoms of exposure: See Potential health effects above. Additional information: RTECS #: VZ0950000 Section 12 Ecological Information Toxicity to fish: Gambusia affinis (fish, freshwater) LC50: 7550 mg/l/24 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea) EC50: 2350 mg/l/48 hours Toxicity to algae: Nitcheria linearis (Algae) LC50: 650 mg/l/5 day Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No 2012 ERG Guide # Not applicable Exceptions: Not applicable Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL WHMIS Classification RCRA code NDSL Component TSCA CERLCA (RQ) Sodium bicarbonate Listed Not listed Not listed Listed Not listed Uncontrolled product Section 16 **Additional Information** The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make indepen-

IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure,

dent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program,

Section 1 Chemical Product and Company Information

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CHEMTREC 24 Hour Emergency
Phone Number (800) 424-9300
For laboratory use only.
Not for drug, food or household use.
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80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739

Product SODIUM BISULFITE Synonyms Sodium Hydrogen Sulfite

Section 2 Hazards Identification

Signal word: DANGER Pictograms: GHS05 / GHS07 Target organs: Respiratory system, Eyes, Skin



GHS Classification: Acute toxicity, oral (Category 4) Eye damage (Category 1)

GHS Label information: Hazard statement:

H302: Harmful if swallowed. H318: Causes serious eye damage.

Supplementary Hazard Statement Code(s):

EUH031: Contact with acids liberates toxic gas.

Precautionary statement:

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P303: Rinse mouth.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor.
P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on	omposition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS					
Sodium bisulfite Sodium metabisulfite		7631-90-5 7681-57-4	58-99% 1-42%	231-548-0 231-673-0					
Section 4	First Aid Measures								

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Dry chemical, CO₂ or water spray.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Contact with water gives a mildly acidic solution and liberates irritating sulfur dioxide gas.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Contact with acids or moisture liberates toxic sulfur dioxide gas.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Sodium bisulfite	TWA: 5 mg/m ³ (A4)	Not established	TWA: 5 mg/m ³			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties						
Appearance: Solid. White granules Odor: Rotten egg odor Odor threshold: Data not available pH: Data not available Melting / Freezing point: Data not available Boiling point: Data not available Flash point: Data not available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.48 Solubility(ies): Soluble in water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available Molecular formula: Mixture Molecular weight: Mixture				
Section 10 Stability & Reactivity						

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Gradually decomposes in air to sulfate, generating sulfurous acid gas. Contact with moisture (water, ice, etc.) will release toxic sulfur dioxide gas.

Incompatible materials: Oxidizers, acids, alkalies, sodium nitrite, aluminum powder and water.

Hazardous decomposition products: Sulfur oxides.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 1131 mg/kg

Skin corrosion/irritation: Skin-rabbit - Slight irritant. Serious eye damage/irritation: Eyes-rabbit - Severe irritant.

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC classified: Group 3: Not classifiable as to its carcinogenicity to humans.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available Potential health effects:

Fotential nearth enects.

Inhalation: Inhalation may cause coughing and wheezing.

Ingestion: Harmful if swallowed. Ingestion causes abdominal pain, diarrhea, nausea, and vomiting

Skin: Contact with skin may cause irritation.

Eyes: Contact with eyes causes redness and pain. May cause irreversible damage.

Signs and symptoms of exposure: Some individuals are sensitive to minute amounts of sulfites in foods. Symptoms may include broncho constriction, shock, gastrointestinal disturbances, angio edema, flushing, and tingling sensation. Once allergy develops, future exposures can cause asthma attacks with shortness of breath, wheezing, and cough. Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: VZ2000000

Section 12 Ecological Information

Toxicity to fish: Lepomis macrochirus (fish, fresh water), LC50 = 32 mg/L/96H

Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50 = 89 mg/L/24H

Toxicity to algae: Scenedesmus subspicatus (Algae), EC50 = 40 mg/L/96H

Persistence and degradability: No data available Bioaccumulative potential: No data available

Mobility in soil: No data available PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.
Section 14
Transport Information (US DOT / CANADA TDG)

UN/NA number: UN3260 Hazard class: 8 Exceptions: Limited quantity equa	ve solid, acidic, inc Reportal 2012 ER	rganic, n.o.s., (So ble Quantity: Ye G Guide # 154	odium bisulfit s	e) Ma	Marine pollutant: No		
Section 15 Regulatory Information							
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Sodium bisulfiteListed50Sodium metabisulfiteListedNot			Not listed Not listed	Listed Listed	Not listed Not listed	D2B Uncontrolled product	
Section 16 Additional Info	mation						

Section 1	Chemical Product and Company Information	Page E1 of E2
scient	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product SODIU	IM BROMIDE	
Synonyms Sedone	eural	
Section 2	Hazards Identification	
This substance or m to the Globally Harm Chemicals. Signal word: None m Pictograms: No sym Target organs: None GHS Classification: GHS Label informati Precautionary states	nixture has not been classified as hazardous according nonized System (GHS) of Classification and Labeling of nbol required e known None required ion: Hazard statement: None required ment: None required	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Sodium bromide		7647-15-6	minimum 99%	231-599-9	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use extinguishing agent suitable for type of surrounding fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Page E2 of E2

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection		
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linnes.	Sodium bromide	Not established	Not established	Not established

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: No odor Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: 1391° Flash point: Not flam	White, crystalline powder a not available e int: 755°C (1391°F) C (2534°F) mable	Evaporation rate (=1): Data not available Partition coefficient: Data not available Flammability (solid/gas): Data not available Partition coefficient: Data not available Explosion limits: Lower / Upper: Data not available Auto-ignition temperature: Data not available Vapor pressure (mm Hg): 1 mm @ 1483°F Decomposition temperature: Data not available Vapor density (Air = 1): Data not available Molecular formula: NaBr Relative density (Specific gravity): 3.203 @ 25°C Molecular weight: 102.90					ot available Data not available : Data not available
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid: Incompatible materia Hazardous decompo	Stable Contact with acids can liberate als: Strong oxidizers and acids psition products: Hydrogen br	Hazardo hydrogen brom omide gas and/o	us polymerization: ' ide. Contact with oxic	Will not occur. lizers can liberate bro	omine.		
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: 3500 mg/kg ; Dermal-rabbit LD50: 2000 mg/kg Skin corrosion/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: To the prespiratory tract. Symptoms may include coughing and shortness of breath. Ingestion: May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath. Ingestion: May cause irritation. May be harmful if absorbed through the skin. Eyes: Contact may cause irritation. May be harmful if absorbed through the skin. Eyes: Contact causes mild irritation. Signs and symptoms of exposure: To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available Evertified Evertifies exponenting to minimitize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: Lepomis macrochirus (Bluegill sunfish), concentration: >1000 mg/L/96H Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Water flea), concentration: >1000 mg/L/48H Toxicity to algae: Scendesmus pannonicus (Algae), concentration: 5800 mg/L/24H Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be Section 14	lelines are intended for the or different. Dispose of in accor Transport Information (US	isposal of cata rdance with all 5 DOT / CANAE	log-size quantities o local, state and fed DA TDG)	only. Federal regulations or	ations may a contract with	apply to empty cor a licensed chem	ntainer. State and/or local iical disposal agency.
UN/NA number:	Not applicable Shinr	ing name: N	ot Regulated				
Hazard class: Not Exceptions: Not	applicable Packi applicable 2012	ng group: N ERG Guide #	ot applicable Not applicable	Reportable Qua	ntity: No	Mari	ne pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for t	ne anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium bromide		Listed	Not listed	Not listed	Listed	Not listed	
Section 16	Additional Information						

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80 Northwest Blvd. Nashua, NH 03063

(800) 225-3739

Chemical Product and Company Information

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300

For laboratory use only. Not for drug, food or household use.

Product SODIUM CARBONATE, ANHYDROUS

Synonyms Soda Ash Section 2 Hazards Identification

Signal word: WARNING Pictograms: GHS07 Target organs: None known.



GHS Classification: Eye irrit. (Category 2A) GHS Label information: Hazard statement: H319: Causes serious eye irritation. Precautionary statement: P264: Wash hands thoroughly after handling

P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several

minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical advice/attention.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Sodium carbonate		497-19-8	100%	207-838-8	
Section 4	First Aid Measures				

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Extinguishing Media: Use any media suitable for extinguishing supporting fire.

General information: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Sodium carbonate reacts with hydrated lime to form caustic soda. Special care should be taken where lime and sodium carbonate are handled in the same area.

Section 6 Accidental Release Measures

Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation. Recover for use if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water. Avoid runoff into storm sewers and ditches which lead to waterways.

ction 7	Handling	&	Storag	je

Se

Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling.

Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale dusts. Wash thoroughly after handling. Remove and wash clothing before reuse.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Section 8 **Exposure Controls / Personal Protection Chemical Name** ACGIH (TLV) OSHA (PEL) NIOSH (REL) Exposure Limits: Sodium carbonate None established. None established None established Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator. **Physical & Chemical Properties** Section 9 Appearance: Solid, white powder. Evaporation rate (= 1): Data not available Partition coefficient: Data not available Odor: No odor. Flammability (solid/gas): Data not available. Auto-ignition temperature: Data not available Odor threshold: Data not available. Explosion limits: Lower / Upper: Not flammable Decomposition temperature: 1000°C (1832°F) pH: Data not available Vapor pressure (mm Hg): Data not available Viscosity: Data not available. Molecular formula: Na₂CO₃ Melting / Freezing point: 864°C (1587°F) Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.533 Boiling point: Decomposes Molecular weight: 105.99 Flash point: Not flammable Solubility(ies): 17% @ 20°C in water Section 10 Stability & Reactivity Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures. Hygroscopic material, avoid moisture. Incompatibilities with other materials: Acids cause decompostion liberating gaseous carbon dioxide. When mixed with lime dust and water, corrosive and caustic soda may be produced Hazardous decomposition products: Carbon dioxide. Section 11 **Toxicological Information** Acute toxicity: Oral-rat LD50: 4090 mg/kg; Inhalation-rat LC50: 2.3 mg/l/2 hours; Dermal-rat LD50: 2210 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available. STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May be harmful if inhaled. Causes respiratory tract irritation. Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed. Skin: May be harmful if absorbed through skin. Causes skin irritation. Eyes: Causes eye irritation. Signs and symptoms of exposure: Burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Additional information: RTECS #: VZ4050000 Section 12 **Ecological Information** Toxicity to fish: LC50 - Lepomis macrochirus (Bluegill) - 300 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 265 mg/l - 48 h Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 **Disposal Considerations** These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No 2012 ERG Guide # Not applicable **Exceptions:** Not applicable Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL NDSL WHMIS Classification RCRA code Component TSCA CERLCA (RQ) Sodium carbonate Listed Not listed Not listed Not listed Not listed D2B : E Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	Scientific (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM CHLORIDE	
Synonyms	Common Salt / Rock Salt	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label Precautiona	ance or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of : Not classified : Not classified ms: None known fication: Not classified information: Hazard statement(s): Not classified ary statement(s): Not classified	Supplementary information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Sodium chloride		7647-14-5	100%	231-598-3	
Section 4	First Aid Measures				

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Page E2 of E2

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Store away from acids.

Section 8	Exposure Controls / Personal Pro	tection			
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)	Γ
Exposure Limits.	Sodium chloride	None established	None established	None established	1

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid, white crystals. Odor: No odor. Odor threshold: Data not available. pH: 4.0-9.0 Melting / Freezing point: 801°C (>1473°F) Boiling point: 1465°C (2669°F) Flash point: Non combustible	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): 2.4 Vapor density (Air = 1): Data not available Relative density (Specific gravity): 2.16 @ 25°C Solubility(ies): 1 g/2.8 ml water at 25°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: NaCl Molecular weight: 58.45
Section 10 Stability & Beastivity		

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Wet conditions can cause caking and/or corrosion.

Incompatible materials: Strong acids.

Hazardous decomposition products: Electrolysis can produce chlorine gas.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 3000 mg/kg

Skin corrosion/irritation: Data not available

Serious eye damage/irritation: Data not available

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available Carcinogenity: Data not available

Carcinogenity. Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation of dust leaves salty taste with mild irritation to mucous membrane in nose and throat.

Ingestion: Ingestion of large amounts (more than 0.1 pound) may cause vomiting.

Skin: Contact may cause very slight irritation.

Eyes: Contact may cause very slight irritation.

Signs and symptoms of exposure: Gross overexposure over a long period of time, results in dehydration.

Additional information: RTECS #: VZ4725000

Section 12 Ecological Information

Toxicity to fish: Lep	omis macrochirus (fish, freshwater) LC50: 9,675 mg/l/96 hours
Toxicity to daphnia a	and other aquatic invertebrates: Daphnia magna (Crustacea) EC50: 6,175 mg/l/16 hours

Toxicity to algae: Anabaena variabilis (Algae) LC50: 23,565 mg/l/4 day

Persistence and degradability: No data available Bioaccumulative potential: No data available

Mobility in soil: No data available PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

regulations may be differen	 Dispose of in accord 	lance with all	local, state and fed	eral regulations or	contract with	a licensed chem	iical disposal agency.
Section 14 Transp	oort Information						
UN/NA number: Not app Hazard class: Not applica Exceptions: Not applica	licable Shippin able Packing ble 2012 EF	ng name: N g group: N RG Guide #	lot Regulated ot applicable Not applicable	Reportable Qua	antity: No	Mari	ne pollutant: No
Section 15 Regula	atory Information						
A chemical is considered to be liste	ed if the CAS number for the	anhydrous form	is on the Inventory list.				
Component		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium chloride		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16 Additi	onal Information						
		6 I. I. E		<i>c</i>			

Section 1	Chemical Product and Company Information	Page E1 of E2
	Scientific (80) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM CHROMATE, ANHYDROUS	
Synonyms	Disodium Chromate(VI) / Chromate of Soda	
Section 2	Hazards Identification	
Signal word Pictograms Target organ GHS Classif Acute toxicity Acute toxicity Skin corrosid Skin sensitiz Acute toxicity Respiratory s Mutagenicity Carcinogenic Reproductive STOT-RE (C Aquatic toxicity Aquatic toxicity	I: DANGER : GHS05 / GHS06 / GHS08 / GHS09 ns: Lungs, Kidneys fication: y, oral (Category 3) y, dermal (Category 4) on (Category 1B) ation (Category 1B) ation (Category 1) y, inhalation (Category 1) y, inhalation (Category 1) ity (Category 1B) toty (Category 1B) a toxicity (Category 1B) atagory 1) bity, acute (Category 1) bity, acute (Category 1) bity, chronic (Category 1)	 Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P284: Wear respiratory protection. P301+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
GHS Label i H301: Toxic H312: Harmi H314: Cause H317: May c H330: Fatal i H334: May c H340: May c H340: May c H350: May c H360FD: Ma H372: Cause H400: Very t	information: Hazard statement: if swallowed. ful in contact with skin. es severe skin burns and eye damage. ause an allergic skin reaction. if inhaled. ause allergy or asthma symptoms or breathing difficulties if inhaled. ause genetic defects. ause cancer. by damage fertility. May damage the unborn child. es damage to organs through prolonged or repeated exposure. oxic to aquatic life.	 P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P391: Collect spillage. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

H410: Very toxic to aquatic life with long lasting effects.

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity. (Chromium [hexavalent compounds])

Section 3	Composition / Information or	Ingredients			
Chemical Name		CAS #	%	EINECS	
Sodium chromate, a	nhydrous	7775-11-3	100%	231-889-5	

Section 4 First Aid Measures

INGESTION: TOXIC IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: FATAL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Dry chemical, CO₂ or water spray.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. Containers may explode when heated. Do not get water inside containers.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection		
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Chromium(VI) inorganic compounds	TWA: 0.05 mg/m ³ (A1) as Cr	TWA: 0.005 mg/m ³ as $Cr(VI)$	TWA: 0.001 mg/m ³ as Cr

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

approved respirator.							
Section 9	Physical & Chemical Prope	erties					
Appearance:Solid. Deliquescent. Yellow crystalsEvaporation rate (= 1): Data not availablePartition coefficOdor:No odorFlammability (solid/gas): Data not availablePartition coefficOdor threshold:Data not availableExplosion limits: Lower / Upper: Data not availablePartition coefficpH:Data not availableVapor pressure (mm Hg): Data not availableDecompositionNelting / Freezing point:792°C (1458°F)Vapor density (Air = 1): Data not availableMolecular formuBoiling point:Data not availableRelative density (Specific gravity): 2.723 @ 25°CMolecular weightFlash point:Data not availableSolubility(ies): 44% in waterNotecular weight					befficient: Data n on temperature: ition temperature Data not available formula: Na ₂ CrO, weight: 161.99	ot available Data not available :: Data not available : 4	
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid: Incompatible materia Hazardous decompo	Stable Excessive temperatures and h als: Combustible materials, red psition products: Chromium ox	Hazardo eat. ucing agents. ides, carbon ox	us polymerization:	Will not occur. e, or sodium oxides	may also be pr	oduced.	
Section 11	Toxicological Information						
Acute toxicity: Oral- Skin corrosion/irrita Serious eye damage Respiratory or skin s Germ cell mutagenic Carcinogenity: Data NTP: Known to be a h IARC classified: Grou OSHA: Specifically re Ca Prop 65: This cher Reproductive toxicit STOT-single exposu STOT-repeated expor Aspiration hazard: I Potential health effer Inhalation: Inplation Ingestion: Ingestion ro Skin: Contact with sk Eyes: Contact with ey Signs and symptom	Acute toxicity: Oral-rat LD50: 51.91 mg/kg ; Inhalation-rat LC50: 0.104 mg/L/4hours ; Dermal-rabbit LD50: 1600 mg/kg Skin corrosion/irritation: Skin-rabbit - irritant Serious eye damage/irritation: Sensitizer Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: Known to be a human carcinogen. IARC classified: Group 1: Carcinogenic to humans. OSHA: Specifically regulated carcinogen (Sodium chromate). Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause burning sensation, sore throat, cough, wheezing, and labored breathing. Repeated or prolonged inhalation may cause asthma. Ingestion: Ingestion may cause redness, pain and/or burns. Repeated or prolonged inhalation may cause asthma. Ingestion: Ingestion may cause redness, pain, blurred vision, severe deep burns. Skin: Contact with kin causes redness, pain, blurred vision, severe deep burns. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.						
Section 12	Ecological Information						
Toxicity to fish: LC5 Toxicity to daphnia a Toxicity to algae: EC Persistence and deg Mobility in soil: No o Other adverse effect	0 - Pimephales promelas (fathea and other aquatic invertebrate : 50 - Scenedesmus quadricauda radability: No data available Jata available s: An environmental hazard car	ad minnow) - 17 s: EC50 - Daphi (Algae) - 580 µ Bioaccumi PBT and vi not be excluded	.6 mg/L - 96.0 h nia magna (Water flea g/L/growth rate ulative potential: No PvB assessment: No d in the event of unpro) - 0.021 mg/L - 48 h data available o data available fessional handling o	r disposal.		
Section 13	Disposal Considerations						
These disposal guid regulations may be	lelines are intended for the di different. Dispose of in acco	sposal of cata dance with all	log-size quantities of local, state and fed	only. Federal regul eral regulations or	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14			JA IDG)				
Hazard class: 6.1 Exceptions: Limit	Packing gr ted quantity equal to or less	oup: III than 5 kg	Reporta 2012 ER	able Quantity: 10 G Guide # 151) lbs (4.54 kg) Mar	ine pollutant: No
Section 15	Regulatory Information						
A chemical is considered	to be listed if the CAS number for th	e anhydrous form	is on the Inventory list.				
Componer	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium chromate		Listed	10 lbs	Not listed	Listed	Not listed	O ^{D1A; D2A; D2B}
Section 16	Additional Information						

TOXIC STORAGE CODE BLUE

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use. Product SODUM DICHROMATE Synonym Sodium Bichromate Section Z HazadS Identification Signal word: Rarget organs: HazadS Identification Wide Strategy (Category 1) Value toxicity, oral (Category 2) Cate toxicity, darmal (Category 1) Value toxicity, oral (Category 1) Solid Hondmatic Toxicity, chronic (Category 1) Acute toxicity, oral (Category 1) Contract toxicity, chronic (Category 1) Acute toxicity, cortal (Category 2) Cate toxicity, chronic (Category 1) Acute toxicity, cortal (Category 2) Cate toxicity, chronic (Category 1) Acute toxicity, cortal (Category 2) Cate toxicity, chronic (Category 1) Acute toxicity, cortal (Category 2) Cate toxicity, chronic (Category 1) Solid Category 1) Cate toxicity, chronic (Category 1) Solid Category 1) Cate toxicity, chronic (Category 1) Acute toxicity, cate (Category 1) Chrone Market Toxicity, chronic (Category 1) Acute toxicity, cate (Category 1) Stin corrosin (Category 1) Acute toxicity, cate (Category 1) Chrone Market Toxicity, chronic (Category 1) Mategorici (Category 2) Acute to	Section 1	Chemical Product and Company Information	Page E1 of E2
Product SODUM DICHROMATE Synomy Sodium Bichromate Section 2 Hazards Identification Signa word: CANGER Pictograms: GHS03 / GHS05 / GHS06 / GHS09 / GHS09 Target organs: Kidneys, Heart, Respiratory system Victograms: GHS04 / GHS07 / GHS07 / GHS06 / GHS09 / GHS09 Target organs: Kidneys, Heart, Respiratory system Victograms: GHS04 / Gategory 2) Victograms: Kidneys, Heart, Respiratory system Victograms: Kidneys, Heart, Respiratory system P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Kepa away from heat/sparks/open flames/hot surfaces. No smoking. P221: Take any precaution to avoid mixing with combustibles and incompatible material P201: Obtain special instructions risk throughly after handling. P201: Obtain special organy 1) Skin corrosion (Category 1) Skin corrosion (Category 1) Acute toxicity, inhalation (Category 1) Acute toxicity, acute (Category 1) Acute toxicity, chronic (Category 1) Acute toxicity, acute (Category 1) Storgen 1)		80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Synonym Sodium Bichromate Section 2 Hazards Identification Signal word: DANGER Precautionary statement: Plotograms: GHS03 / GHS05 / GHS06 / GHS08 / GHS09 Target organs: Kidneys, Heart, Respiratory system Precautionary statement: Voidizing solid (Category 2) Void Void Void Void Void Void Void Void	Product	SODIUM DICHROMATE	
Section 2 Hazards Identification Signal word: DANGER Pictograms: GHS03 / GHS05 / GHS06 / GHS08 / GHS09 Precautionary statement: Pictograms: Kidneys, Heart, Respiratory system Target organs: Kidneys, Heart, Respiratory system Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from clothing/incompatible/combustible materials. P220: Do not breathe dust. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P220: Do not breath dust. P264: Wash hands thoroughly after handling. P200: Do not beat, drink or smoke when using this product. P210: Use on lead, drink or smoke when using this product. P211: Use only outdoors or in a well-ventilated area. P212: Contaminated work clothing should not be allowed out of the workplace. P213: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection. P284: Wear respiratory protection. P284: Wear respiratory protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P301: Taxie of swallowed. H312: Call a POISON CENTER or doctor. P302+P364: Take off contaminated clothing and wash it before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301: Taxie of swallowed. H310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.	Synonyms	Sodium Bichromate	
Signal word: DANGER Precautionary statement: Pictograms: GHS03 / GHS05 / GHS06 / GHS08 / GHS09 Target organs: Kidneys, Heart, Respiratory system P202: Do not handle until all safety precautions have been read and understood. P202: Do not handle until all safety precautions have been read and understood. P202: Do not handle until all safety precautions have been read and understood. GHS Classification: Oxidizing solid (Category 2) Acute toxicity, oral (Category 3*) Skin corrosion (Category 1) Skin corrosion (Category 18) Skin corrosion (Category 18) Respiratory sensitizer (Category 1) Acute toxicity, inhalation (Category 2*) Mutagenicity (Category 18) Storie resc. Reproductive (Category 18) Reproductive (Category 18) Storie resc. Aquatic toxicity, chronic (Category 1) Aquatic toxicity, acute (Category 1) Aquatic toxicity, chronic (Category 1) Aquatic toxicity, acute (Category 1) P203: P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. H312: Harmful in contact with skin. H312: Harmful in contact with skin. P302: P334: Take off contaminated clothing and wash it before reuse. H312: Harmful in contact with skin. P310: Immediately call a POISON CENTER or doctor. P304+P330: IF IN EYES: Rinse cautiously with water for several minutes. P303: Fatal if inhaled. P305+P331: IF WAYES: Rinse cau	Section 2	Hazards Identification	
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. Remove contact lenses, if present and easy to do. Continue rinsing. H340: May cause genetic defects. P370+P378: In case of fire: Use dry chemical, CO ₂ or water spray to extinguish. H350: May cause cancer. P370+P378: In case of fire: Use dry chemical, CO ₂ or water spray to extinguish. H360FD: May damage fertility. May damage the unborn child. P403+P233: Store in a well-ventilated place. Keep container tightly closed. H372**: Causes damage to organs through prolonged or repeated exposure. P405: Store locked up. H400: Very toxic to aquatic life. P501: Dispose of contents/container to a licensed chemical disposal agency in	Signal word Pictograms Target orga GHS Classi Oxidizing so Acute toxicit Skin sensitiz Respiratory Carcinogeni STOT - RE (Aquatic toxic GHS Label H272: May in H301: Toxic H312: Harm H314: Cause H317: May of H330: Fatal H334: May of H340: May of H340: May of H360FD: Ma H372**: Cau	 t: DANGER t: GHS03 / GHS05 / GHS06 / GHS08 / GHS09 ns: Kidneys, Heart, Respiratory system (1) (2) (2) (2) (2) fication: id (Category 2) Acute toxicity, oral (Category 3*) y, dermal (Category 4*) Skin corrosion (Category 1B) er (Category 1) Acute toxicity, inhalation (Category 2*) sensitizer (Category 1) Acute toxicity, inhalation (Category 2*) sensitizer (Category 1) Acute toxicity, acute (Category 1B) category 1) Aquatic toxicity, acute (Category 1) ity, chronic (Category 1) nformation: Hazard statement: ntensify fire; oxidizer. if swallowed. iu in contact with skin. as severe skin burns and eye damage. ause an allergic skin reaction. if inhaled. ause an allergy or asthma symptoms or breathing difficulties if inhaled. ause cancer. y damage fertility. May damage the unborn child. ses damage to organs through prolonged or repeated exposure. oxic to aquatic life. 	Precautionary statement: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles and incompatible materials. P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P310: Immediately call a POISON CENTER or doctor. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P312: Call a POISON CENTER or doctor. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water fo

Ca Prop 65: This chemical is known to the State of California to cause cancer or reproductive toxicity (Chromium, hexavalent compounds, cancer and developmental).

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Sodium dichromate, d	ihydrate	7789-12-0	100%	234-190-3	
Section 4	First Aid Measures				

INGESTION: TOXIC IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: FATAL IF INHALED. MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IN CONTACT WITH SKIN. CAUSES SEVERE SKIN BURNS. MAY CAUSE AN ALLERGIC SKIN REACTION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Extinguishing Media: Dry chemical, CO2 or water spray.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Prote	ection		
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	As water soluble Cr(VI) inorganic compounds	TWA: 0.05 mg/m ^{3(A1)} *	TWA: 0.005 mg/m ³ *	TWA: 0.001 mg/m ³ *

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance:Solid. Red-orange crystalsEvaporation rate (=1):Data not availablePartition coefficient:Data not availableOdor threshold:Data not availableFlammability (solid/gas):Data not availableAuto-ignition temperature:Data not availablePH:Data not availableExplosion limits:Lower / Upper:Data not availableDecomposition temperature:Data not availablePH:Data not availableVapor pressure (mm Hg):Data not availableViscosity:Data not availableWelting / Freezing point:DecomposesVapor density (Air = 1):Data not availableViscosity:Data not availableBoiling point:DecomposesRelative density (Specific gravity):2.348Molecular formula:Na_2Cr_2O_7*2H_2OBoiling point:Data not availableSolubility(ies):73 g/100 ml water @ 20°C20°CMolecular weight:298.05						ot available Data not available 9: Data not available 9: D ₇ •2H ₂ O	
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid Incompatibilities wit Hazardous decompo	Stable : Excessive temperatures and h th other materials: Strong alka osition products: Chromic oxid	Hazardo eat. lies, acids, coml les, chromium o	bus polymerization: bustibe materials, and xides, sodium hydroxid	Will not occur. oxidizing materials. Je or sodium oxide.			
Section 11	Toxicological Information						
Acute toxicity: Oral- Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutagenic Carcinogenity: Data NTP: Listed. IARC classified: Grou OSHA: Listed as Chro Reproductive toxicit STOT-single exposu STOT-repeated expo Aspiration hazard: I Potential health effe Inhalation: May caus may include burning s Ingestion: Can cause diarrhea, shock or col Skin: Symptoms incli Eyes: Contact cause Signs and symptom	vcute toxicity: Oral-rat LD50: 51.10 mg/kg ; Inhalation-rat LC50: 124.42 mg/cu m/4 hour (aerosol) ; Dermal-rabbit LD50: 1000 mg/kg ikin corrosion/irritation: Skin-rabbit - Slight irritant. ierious eye damage/irritation: Eyes-rabbit - Severe irritant. tespiratory or skin sensitization: Data not available Serm cell mutagenicity: Data not available Yarcinogenity: Data not available TP: Listed ARC classified: Group 1: Carcinogenic to humans. SHA: Listed as Chromium(VI) compound. Keproductive toxicity: Data not available STOT-single exposure: Data not available STOT-speated exposure: Data not available Stron-repeated exposure: Data not available Storting health effects: nhalation: nhalation: May cause irritation of nasal septum and respiratory tract. Prolonged or repeated exposure may cause ulceration and perforation of the nasal septum. Symptoms nay include burning sensation, sore throat, cough, wheezing, labored breathing. nogestion: Can cause severe tissue destruction. Kin cause. Symptoms include nausea, vomiting, abdominal pain, burning sensation, tiarrhea, shock or collapse Skin: Symptoms include redness, pain, and						
Section 12	Ecological Information						
Toxicity to fish: LCS Toxicity to daphnia a Toxicity to algae: No Persistence and deg Mobility in soil: No Other adverse effect	Toxicity to fish: LC50 - Pimephales promelas (fathead minnow) - 33,200 ug/L/96 hour Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.						
Section 13	Disposal Considerations						
These disposal guid regulations may be Section 14	delines are intended for the or different. Dispose of in accor Transport Information (US	isposal of cata rdance with al DOT / CANA	llog-size quantities o I local, state and fed DA TDG)	nly. Federal regula eral regulations or	ations may a contract with	pply to empty cor a licensed chem	ntainer. State and/or local nical disposal agency.
UN/NA number: Hazard class: 6.1 Exceptions: Limi Section 15	UN3288 Shipping I Packing g ited quantity equal to or less Regulatory Information	name: Toxic: roup: III than 1 L	solid, inorganic, n.o. Reporta 2012 ER	s., (Sodium dichro ble Quantity: Yes G Guide # 151	omate) s	Mari	ine pollutant: No
A chemical is considered	to be listed if the CAS number for t	ne anhydrous form	CERLCA (PO)	RCRA code	ופח	NDSI	WHMIS Classification
Sodium dichromate	in.	Listed	10 lbs. (4.54 kg)	Not listed	Listed	Not listed	C; D1A; D2A; D2B

Section 16 Additional Information

SDS No.: SS0550

Section 1 **Chemical Product and Company Information** CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua. NH 03063 Not for drug, food or household use. (800) 225-3739 SODIUM HYDROXIDE, ANHYDROUS Product Synonyms Caustic Soda Section 2 Hazards Identification Signal word: DANGER Precautionary statement: Pictograms: GHS05 P260: Do not breathe dust Target organs: Respiratory tract, gastrointestinal tract, eyes, skin. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated GHS Classification: clothing. Rinse skin with water/shower. Skin. Corr. (Category 1A) P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing GHS Label information: Hazard statement: P310: Immediately call a POISON CENTER or doctor. H314: Causes severe skin burns and eve damage. P363: Wash contaminated clothing before reuse. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Sodium hydroxide		1310-73-2	96-100%	215-185-5	
Section 4	First Aid Measures				

INGESTION: MAY BE FATAL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Flood with water, taking care not to splash or scatter. Avoid carbon dioxide as it reacts exothermically with this material.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: Contact with metals can generate hydrogen gas. Contact with water produces intense heat and highly irritating and corrosive mist. Hot or molten material will react violently with water liberating heat and causing splashing. Contact with water may generate sufficient heat to ignite combustible materials.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Prot	tection		
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Limits:	Sodium hydroxide	STEL: C 2 mg/m ³	TWA: 2 mg/m ³	STEL: C 2 mg/m ³

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties						
Appearance: Solid Odor: No odor. Odor threshold: Da pH: 13.0 - 14.0 Melting / Freezing p Boiling point: 1390 Flash point: Not ap	white beads or pellets. ta not available. oint: 318°C (604°F) °C (2534°F) plicable.	Evaporation r Flammability Explosion lim Vapor pressur Vapor density Relative dens Solubility(ies)	ate (=1): Not applica (solid/gas): Data not a its: Lower / Upper: N re (mm Hg): 1 mm Hg (Air = 1): Not applicab ity (Specific gravity): 2 :: 29.6 @ 0°C (32°F) in	ble. vailable. ot applicable. @ 739°C le. 2.13 @ 25°C (77°F) water	Partition c Auto-ignit Decompos Viscosity: Molecular Molecular	coefficient: (n-octa ion temperature: sition temperature Not applicable. formula: NaOH weight: 40.00	nol / water): Data no Not applicable. : Data not available.	nt available.
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid	Stable I: Deliquescent material. Absor ials: Metals acids organic con	Hazard bs moisture from	ous polymerization: V n air. Can react with car	Vill not occur. bon dioxide to form	sodium carbo	onate.		
Hazardous decom	esition products: Sodium ovid	le Reacts with i	metals to form flammab	le and explosive byd	rogen gas			
Contine 44	Toxicological Information			le and explosive nyu	iogen gas.			
Section 11	Ioxicological information							
Acute toxicity: Dat Skin corrosion/irrit Serious eye damagg Respiratory or skin Germ cell mutagen Carcinogenity: Dat NTP: No component IARC: No component OSHA: No component Reproductive toxic STOT-single exposs STOT-repeated exp Aspiration hazard: Potential health eff Inhalation: May be Ingestion: May be Ingestion: May be Inskin: May be Inskin: May be harmf Eyes: Causes eye b Signs and symptor edema, burning sen: and upper respirator Additional informat	a not available ation: Skin - rabbit - Causes se reviritation: Eyes - rabbit - Sev sensitization: Data not availa icity: Data not available of this product present at levels t of this product present at level t on t available Data not available Data not available Data not available ects: narmful if inhaled. Material is ext armful if swallowed. ul if absorbed through skin. Cau urns. Causes severe eye burns ns of exposure: Spasm, inflam sation, cough, wheezing, laryngi y tract, eyes, and skin. tion: RTECS #: WB4900000	vere burns 24 ere eye irritation ole greater than or s greater than or ls greater than or ls greater than o remely destruction ses skin burns. mation and eder tis, shortness of	h - 24 h equal to 0.1% is identifir equal to 0.1% is identif or equal to 0.1% is identif ve to the tissue of the m ma of the larynx, spasm breath, headache, naus	ed as a known or an ied as probable, pos ified as a carcinoger ucous membranes a , inflammation and e sea, vomiting. Mater	ticipated carc ssible or confi n or potential and upper res edema of the ial is extreme	cinogen by NTP. rmed human carcin carcinogen by OSH piratory tract. bronchi, pneumonit ly destructive to tis	iogen by IARC. IA. is, pulmonary sue of the mucous m	nembranes
Section 12	Ecological Information							
Toxicity to fish: LC Toxicity to daphnia Toxicity to algae: N Persistence and de Mobility in soil: No Other adverse effec	50 - Gambusia affinis (Mosquito and other aquatic invertebrat o data available gradability: No data available data available ts: An environmental hazard ca	fish) - 125 mg/l es: Immobilizatio Bioaccum PBT and v annot be exclude	- 96 h on EC50 - Daphnia - 40. ulative potential: No o / PvB assessment: No ed in the event of unprof	38 mg/l - 48 h lata available data available essional handling or	disposal.			
Section 13	Disposal Considerations							
These disposal gu regulations may be	delines are intended for the dedifferent. Dispose of in acc	disposal of cata ordance with al	alog-size quantities or Il local, state and fede	nly. Federal regulations or o	ations may a contract with	apply to empty con a licensed chem	ntainer. State and/ nical disposal agene	or local cy.
Section 14	Transport Information	-						
UN/NA number: Hazard class: 8 Exceptions: Lim	UN1823 Shipping Packing g ited quantity equal to or less	name: Sodiu roup: II s than 1 Kg	m hydroxide, solid Reportab 2012 ER	le Quantity: 1,00 G Guide # 154	00 lbs (454	kg) Mar i	i ne pollutant: No)
Section 15	Regulatory Information							
A chemical is considere	d to be listed if the CAS number for	he anhydrous form	n is on the Inventory list.					
Compone	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classif	fication
Sodium hydroxide		Listed	1,000 lbs (454 kg)	D002	Listed	Not listed		E
Section 16	Additional Information							
The information contain	ad barain is furnished without warra	ature free line Fr	malayers aboutd use this is	formation only as a gur	n la mant ta ath	or information anthory	d by them and my of my	aka indanan

Chemical Product and Company Information Section 1 Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua NH 03063 Not for drug, food or household use. (800) 225-3739 SODIUM HYPOCHLORITE, 5% SOLUTION Product Synonyms Chlorine Bleach / Bleach Section 2 Hazards Identification Signal word: WARNING Precautionary statement: Pictograms: GHS07 P264: Wash hands thoroughly after handling. Target organs: Eyes, Skin, Respiratory system P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P302+P352: IF ON SKIN: Wash with plenty of water and soap P332+P313: If skin irritation occurs: Get medical attention. GHS Classification: P362+P364: Take off contaminated clothing and wash it before reuse. Skin irritation (Category 2) Eye irritation (Category 2A) GHS Label information. Hazard statement: H315: Causes skin irritation. H319: Causes serious eye irritation. Supplementary information: EUH031: Contact with acids liberates toxic gas.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Chemical Name		CAS #	%	EINECS	
Water Sodium hypochlorite Sodium carbonate		7732-18-5 7681-52-9 497-19-8	95.00% 5.00% <0.1%	231-791-2 231-668-3 207-838-8	
Section 4	First Aid Measures				

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, emits toxic fumes of chlorine. Contact with hydrochloric acid liberates chlorine gas. This material will react with some metals, which may cause liberation of oxygen. Vigorous reactions can occur with oxidizable materials and organics.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, well-ventilated area away from incompatible substances. Protect from sunlight.

Section 8	Exposure Controls / Personal Protection					
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Sodium hypochlorite	Not established	Not established	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

approtoa teephaten									
Section 9	Physical & Chemica	I Properties							
Appearance: Clear, Odor: Chlorine odor. Odor threshold: Dat pH: 9.2 Melting / Freezing point: Boiling point: Data n Flash point: Non-flat	pale yellow liquid. a not available. Data not available not available mmable	Evapor Flamm Explos Vapor Relativ Solubi	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): Data not available Solubility(ies): Complete in water.				oefficient: Data no on temperature: lition temperature Data not available formula: Mixture weight: Mixture	ot available Data not available : >100°C (212°F)	
Section 10	Stability & Reactivity	/							
Chemical stability: Conditions to avoid Incompatible materi Hazardous decompo Oxygen can be gener	Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures and direct sunlight. Incompatible materials: Acids, oxidizable materials, combustibles, ammonia and/or metals. Hazardous decomposition products: Chlorine given off on contact with acids. Thermal decomposition may produce hydrochloric acid with heat, hypochlorous acid vapors. Oxygen can be generated during decomposition. Excessive temperatures and the product of the product								
Section 11	Toxicological Inform	ation							
Acute toxicity: Data Skin corrosion/irrita Serious eye damage Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component IARC: No component OSHA: No component STOT-single exposu STOT-repeated exposu STOT	Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available TP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Add not available Stot-single exposure: Repeated or prolonged contact may cause skin sensitization. Exercise appropriate procedures to minimize potential hazards.								
Section 12	Ecological Informati	on							
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.									
Section 13	Disposal Considera	tions							
These disposal guid regulations may be	delines are intended for different. Dispose of i	r the disposal n accordance	of catal with all	og-size quantities of local, state and fede	nly. Federal regulations or	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/c	or local sy.
Section 14	Transport Informati	on (US DOT /	CANAD	A TDG)					
UN/NA number:	Not applicable	Shipping na	me: N	ot Regulated					
Hazard class: No Exceptions: Not	t applicable	Packing gro	up: No	ot applicable	Reportable Qua	antity: Yes	Mari	ine pollutant: No	
Exceptions: Not applicable 2012 EKG Guide # Not applicable									
Section 15 Regulatory Information A chamical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list									
Compone	nt	T:	SCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classifi	cation
Sodium hypochlorite		Li	isted	100 lbs (45.4 kg)	Not listed	Listed	Not listed	θ	E
Section 16	Additional Informati	on							

SDS No.: SS0620

Section 1

Chemical Product and Company Information

80 Northwest Blvd. Nashua. NH 03063

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.

cientific (800) 225-3739

Product SODIUM IODIDE (ANHYDROUS)

Synonyms Sodium Monoiodide Section 2 Hazards Identification

This substance or mixture has not been classified as hazardous according to the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals.

Signal word: WARNING Pictograms: GHS07 Target organs: None known



GHS Classification: Acute toxicity, inhalation (Category 5) Skin irritation (Category 2) Eye irritation (Category 2B)

GHS Label information: Hazard statement: H303: May be harmful if swallowed.

H303: May be narmful if swallow H315: Causes skin irritation. H320: Causes eye irritation.

Precautionary statement:

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of water and soap.
P332+P313: If skin irritation occurs: Get medical attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical attention.
P312: Call a POISON CENTER or doctor if you feel unwell.
P362+P364: Take off contaminated clothing and wash it before reuse.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Sodium iodide		7681-82-5	100%	231-679-3		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Turns brown on exposure to air.

Section 8	Exposure Controls / Personal Protection					
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator

Section 1 Physical & Chemical Properties Appearance: Source: No addit with growth: Source: The Applicable Planmability (colligings): Calm not available Applicable Planmability (colligings): (colligings): Calm not available Applicable Planmability (colligings): (colligings): Calm not available Applicable Planmability (colligings): (collig									
<text></text>	Section 9	Physical & Chemical F	Properties						
Section 1 Stability & Reactivity Charried stability: Schole Heardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures. Protect from light Incompatible materials: Adds, strong oxidizers, metallic saits, chloral hydrate, perchloric add, bromine trifliconie. Heardous decomposition products: Iodine, solution adde. In presence of adds can liberate hydrogen locidie. In presence of addizers can liberate locine. Section 1 Toxicological Information Acute toxicity: Data not available Respiratory or sint sequence. Tokan or available Generic 1: Solid Construction: Data not available Respiratory or sint sequence. Data not available Generic 2: Solid Construction: Data not available Respiratory or sint sequence. Data not available MRC: No component of this product present at levels greater than or equal to 0.1% is identified as a norw on anticipated carcinogen by USR. STOT-single sequence: Data not available Store on available STOT-single sequence: Data not available Store on available STOT-single sequence: Data not available Store on available Store on available Respiratory on availa	Appearance: Solid, Odor: No odor. Odor threshold: Da pH: 8 - 9.5 Melting / Freezing p Boiling point: 1304 Flash point: Non-fla	white powder. ta not available. oint: 653°C (1207°F) °C (2379°F) mmable	Evaporation ra Flammability (Explosion limi Vapor pressun Vapor density Relative densi Solubility(ies):	te (=1): Not applied solid/gas): Data not ts: Lower / Upper: 1 e (mm Hg): 1 mm @ (Air = 1): Data not an ty (Specific gravity): 1 g/0.5 ml water	able available. Not applicable 767°C vailable 3.667 @ 22°C	Partition co Auto-ignition Decompos Viscosity: Molecular Molecular	befficient: Data no on temperature: I ition temperature Data not available formula: Nal weight: 149.889	ot available Not applicable : Data not available.	
Chemical stability: Stable Heardous polymerization: Will not occur: Conditions to work: Excessive tempratures. Protect from light: Incompatible materials: Acids, strong oxidizers, metallic salts, chloral hydrate, perchloric acid, bronine trifluoride. In presence of oxidizers can liberate indine. Section 11 Toxicological Information Acute toxicity: Data not available: Section 11 Section 12 Toxicological information Acute toxicity: Data not available: Section 12 Section 13 Data not available: Section 14 Data not available: Section 15 Data not available: Germ cell multipanel Drip Data not available: Section 12 Germ cell multipanel Drip Data not available: Section 13 Conditions on available: Section 14 Germ Cell multipanel Drip Data not available: Section 12 Conditions of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available: Section 12 Store endossen di tritation. Section 12 Reproductive toxicity: Data not available: Section 12 Montaliation: Inhiation may cause coupls prove thread, headsche. Inhiation: Inhiation may cause coupls prove thread, headsche.	Section 10	Stability & Reactivity							
Section 11 Toxicological Information Acute toxicity: Data not available Serious reg damage/initiation:: Data not available Serious reg damage/initiation:: Data not available Serious reg damage/initiation:: Data not available Comment of his product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. LNC:: No component of his product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproducted exposure: Data not available STOT-reget developse: Data not available Stote calcular of exposure: Ingestion nause diamona data available Reget calcular of exposure: Data not available Stote calcular of exposure: Deposital notavavailable	Chemical stability: Conditions to avoid Incompatible mater Hazardous decomp	Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures. Protect from light. Incompatible materials: Acids, strong oxidizers, metallic salts, chloral hydrate, perchloric acid, bromine trifluoride. Hazardous decomposition products: Iodine, sodium oxide. In presence of acids can liberate hydrogen iodide. In presence of oxidizers can liberate iodine.							
Acute toxicity: Data not available Skrice damage/instaince: Data not available Gern cell mutagenicity: Data not available Gern cell mutagenicity: Data not available Gern cell mutagenicity: Data not available Cance toxicity: Data not available Cance toxicity: Data not available Cance nonponent of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-single exposure: Data not available Store access redness and intration. Eyes: Causes redness and intration. Eyes: Causes redness and intration. Eyes: Causes redness and intration. Strice is the cata available Strice access redness and intration. Strice and strice is an out available Strice and strice is an out available Strice and strice is an out available Strice and strice is an available Strice 13 <t< td=""><td>Section 11</td><td>Toxicological Informat</td><td>tion</td><td></td><td></td><td></td><td></td><th></th></t<>	Section 11	Toxicological Informat	tion						
Section 12 Ecological Information Toxicity to fish: Data not available Toxicity to fish: Data not available Toxicity to daphnia and other aquatic invertebrates: Data not available Bioaccumulative potential: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.	Acute toxicity: Data Skin corrosion/irrita Serious eye damag Respiratory or skin Germ cell mutageni Carcinogenity: Data NTP: No component IARC: No component Reproductive toxici STOT-single exposi STOT-repeated exp Aspiration hazard: Potential health effor Inhalation: Inhalation Ingestion: Ingestion Skin: Causes rednet Eyes: Causes rednet Signs and sympton various skin reaction Additional informat	Securit 11 Toxicological information Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause cough, sore throat, headache. Ingestion: Ingestion causes diarrhea, nausea, vomiting. Skin: Causes redness and irritation. Eyes: Causes redness and irritation. Signs and symptoms of exposure: Ingestion may cause effects on the thyroid. May cause systemic sensitization with symptoms that may include airway obstruction and variable proceedings to reven analylabeic shock. Exercise anorphylactic shock is shock is increating toutenee touteness in the main include airway obstructi							
Toxicity to fish: Data not available Toxicity to daphnia and other aquatic invertebrates: Data not available Toxicity to dage: Data not available Persistence and degradability: No data available Bioaccumulative potential: No data available Persistence and degradability: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 Disposal Considerations These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Packing group: Not applicable Packing group: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Cla	Section 12	Ecological Information	ı						
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Shipping name: Not Regulated Packing group: Not applicable Reportable Quantity: Marine pollutant: No Section 15 Regulatory Information Marine pollutant: No A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Most is considered MDSL WHMIS Classification Sodium iodide Listed Not listed Not listed Listed Not listed Dist D2A	Toxicity to fish: Dat Toxicity to daphnia Toxicity to algae: Da Persistence and de Mobility in soil: No Other adverse effec Section 13	Toxicity to fish: Data not available Toxicity to daphnia and other aquatic invertebrates: Data not available Toxicity to algae: Data not available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Reportable Quantity: No Marine pollutant: No Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. VHMIS Classification Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Sodium iodide Listed Not listed Not listed Listed Not listed D2A	These disposal gui	delines are intended for the different. Dispose of in	the disposal of cata	log-size quantities of	only. Federal regulations or	ations may a	pply to empty cor a licensed chem	ntainer. State and/or local	
UN/NA number:Not applicable Packing group:Shipping name:Not Regulated Packing group:Reportable Quantity:NoMarine pollutant:NoHazard class:Not applicable 2012 ERG Guide # Not applicable 2012 ERG Guide # Not applicableReportable Quantity:NoMarine pollutant:NoSection 15Regulatory InformationA chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.ComponentTSCACERLCA (RQ)RCRA codeDSLNDSLWHMIS ClassificationSodium iodideListedNot listedNot listedListedNot listedD2A	Section 14	Transport Information	1						
Section 15 Regulatory Information A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. NDSL WHMIS Classification Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Sodium iodide Listed Not listed Not listed Listed Not listed D2A	UN/NA number: Hazard class: Not Exceptions: Not	Section 14 Transport Information UN/NA number: Not applicable Shipping name: Not Regulated Hazard class: Not applicable Packing group: Not applicable Reportable Quantity: Marine pollutant: No Exceptions: Not applicable 2012 ERG Guide # Not applicable Contraction Marine pollutant: No							
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. Component TSCA CERLCA (RQ) RCRA code DSL NDSL WHMIS Classification Sodium iodide Listed Not listed Not listed Listed Not listed D2A	Section 15 Regulatory Information								
Sodium iodide Listed Not listed Not listed Listed Not listed Not listed DSL WHMIS Classification	A chemical is considered	d to be listed if the CAS numbe	r tor the anhydrous form	is on the Inventory list.		Dei	NDEL	WUMIS Close Histics	
	Sodium iodide	711.	Listed	Not listed	Not listed	Listed	Not listed		

Section 16 **Additional Information**

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM NITRATE	
Synonyms	Nitrate of Soda / Chile Saltpeter	
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classif Oxidizing so Acute toxicit Eye irritation GHS Label i H272: May in H302: Harmi H319: Cause	 d: WARNING :: GHS03 / GHS07 ins: Red blood cells ins: Red blood cells inform: information: Hazard statement: information: Hazard statement: information: Hazard statement: information: eye irritation. 	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles/acids/oxidizers. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P370+P378: In case of fire: Use water to extinguish. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Sodium nitrate		7631-99-4	100%	231-554-3		
Section 4	First Aid Measures					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Although not flammable, substance is a strong oxidizer which releases oxygen on heating, increasing the burning rate of any material with a flare-burning effect. It may cause re-ignition after a fire is extinguished.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from combustible or reducing agents.

Section 8	Exposure Controls / Personal Protection					
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Linnes.	Sodium nitrate	Not established	Not established	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties				
Appearance: Solid, Odor: No odor. Odor threshold: Da pH: Data not availab Melting / Freezing po Boiling point: Data Flash point: Non-fla	colorless crystals. a not available. le. bint: 307°C (584°F) not available mmable	Evaporation rate (= 1): D Flammability (solid/gas): Explosion limits: Lower / Vapor pressure (mm Hg): Vapor density (Air = 1): Da Relative density (Specific grav Solubility(ies): 73 g/100 m	Data not available Data not available. Upper: Data not available Negligible ata not available ity): 2.261 @ 25°C L water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: 380°C (716°F) Viscosity: Data not available. Molecular formula: NaNO ₃ Molecular weight: 84.99		
Section 10	Stability & Reactivity					
Chemical stability: Conditions to avoid	Stable : Excessive temperatures, heat	Hazardous polymer t, sparks, open flame and othe	ization: Will not occur. er sources of ignition. Keep awa	ay from combustible or reducing agents.		
Incompatible mater	als: Combustible materials, rec	ducing agents, strong acids a	nd flammable materials.			
Hazardous decomp	osition products: Nitrogen oxi	des.				
Section 11	Toxicological Information					
Acute toxicity: Oral Skin corrosion/irrita Serious eye damag Respiratory or skin Germ cell mutageni Carcinogenity: Dat NTP: No component IARC: No component IARC: No component OSHA: No component STOT-single exposed STOT-repeated exp Aspiration hazard: Potential health effe Inhalation: Cough ar Ingestion: Abdomina Skin: Redness. Eyes: Redness and Signs and symptom appropriate procedur	Section 11 Toxicological Information Acute toxicity: Oral-rat LD50: 1267 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Cough and sore throat. Ingestion: Abdominal pain, cyanosis (blue lips, fingernails and skin), convulsions, diarrhea, dizziness, headache, labored breathing, confusion, nausea, unconsciousness. Skin: Redness. Eyes: Redness and pain. Signs and symptoms of exposure: Ingestion could cause effects on the blood. This may result in formation of methaemoglobin. The effect may be delayed. Exercise					
Section 12	Ecological Information					
Toxicity to fish: Lepomis macrochirus (fish, fresh water), LC50 = 12,800 mg/L/24 hours Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), LC50 = 6,000 mg/L/24 hours Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental bazard cannot be excluded in the event of unprofessional bandling or disposal						
Section 13	Disposal Considerations					
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.						
Section 14	Transport Information (U	S DOT / CANADA TDG)				
UN/NA number: Hazard class: 5.1 Exceptions: Lim	UN1498 Shipping Packing g ted quantity equal to or less	name: Sodium nitrate roup: III s than 5 Kg	Reportable Quantity: No 2012 ERG Guide # 140	Marine pollutant: No		

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.						
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium nitrate	Listed	Not listed	D001	Listed	Not listed	(C; D2B) C; D2B

Section 16 **Additional Information**

Section 15

Regulatory Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM OXALATE	
Synonyms	Ethanedioic Acid Disodium Salt	
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classi Acute toxicit Acute toxicit Skin irritation Eye irritation GHS Label H302: Harm H312: Harm H314: Cause	 i: DANGER : GHS05 / GHS07 ns: Cardiovascular system, Central nervous system, Liver, Kidneys iii Cation: y, oral (Category 4) y, dermal (Category 4) n (Category 1B) i (Category 1) iinformation: Hazard statement: ful if swallowed. ful in contact with skin. es severe skin burns and eye damage. 	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P310+P331: IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P312: Call a POISON CENTER or doctor if you feel unwell. P362+P364: Take off contaminated clothing and wash it before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Sodium oxalate		62-76-0	100%	200-550-3		
Section 4	First Aid Measures					

INGESTION: MAY BE FATAL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Dry chemical, CO₂ or water spray.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Sodium oxalate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: No odor Odor threshold: Da pH: Data not availab Melting / Freezing p Boiling point: Data Flash point: Data n	White powder ta not available le oint: 250-270°C (482-518°F) not available ot available	Evaporation r Flammability Explosion lim Vapor pressur Vapor density Relative densi Solubility(ies)	ate (=1): Data not a (solid/gas): Data not a its: Lower / Upper: I re (mm Hg): Data not (Air = 1): Data not av ity (Specific gravity): : 37 g/L water @ 20°C	vailable available Data not available available available 2.34 2 (68°F)	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data r ion temperature: sition temperature Data not available formula: (COONa weight: 134.00	not available Data not available 2: Data not available 2: a) ₂
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable I: Excessive temperatures and I	Hazardo	ous polymerization:	Will not occur.			
Incompatible mater	ials: Strong oxidizers and acids	.					
Hazardous decomp	osition products: Carbon oxid	es.					
Section 11	Toxicological Information						
Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Harmful if inhaled. Corrosive to mucous membranes. Oxalates can be absorbed through the lungs. Symptoms inlcude nervousness, cramps, central nervous system depression. Ingestion: May be fatal if swallowed. Corrosive action on the mucosa and sever gastrointestitis can occur with pain and vomiting. Skin: Corrosive. Symptoms of redness, pain, and sever burns can occur. Eyes: Corrosive. Contact can cause blurred vision, redness, pain, and severe tissue burns. Signs and symptoms of exposure: This substance may cause effects on the kidneys. Exercise appropriate procedures to minimize potential hazards.							
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.							
Section 14	LINIODO	S DUT / CANA	DA TDG)		live av-l-t \		
UN/NA number:UN2928Shipping name:Toxic solids, corrosive, organic, n.o.s., (Sodium oxalate)Hazard class:6.1, (8)Packing group:IIReportable Quantity:NoMarine pollutant:No							
Exceptions: No	exceptions 2012 ERG	Guide # 154					
Section 15 Regulatory Information							
	a to be listed if the CAS number for f	TSCA	CERLCA (RO)	RCRA code	DSI	NDSI	WHMIS Classification
Sodium oxalate		l isted	Not listed	Not listed	Listed	Not listed	
		Listou			Listou	i tot ilotou	U 222
Section 16	Additional Information						
The information contain	ed berein is furnished without warra	nty of any kind Er	mplovers should use this i	nformation only as a su	innlement to oth	er information dather	ed by them and must make indeper

dent determinations of suitability and completeness of information form all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM PHOSPHATE, DIBASIC, HEPTAHYDRATE	
Synonyms	Disodium Phosphate, 7-Hydrate	
Section 2	Hazards Identification	
This substa to the Globa Chemicals. Signal word Pictograms Target orga GHS Classii GHS Label i Precautiona	Ince or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of I: Not classified ns: Not classified information: Not classified information: Hazard statement: Not classified ary statement: Not classified	Supplemental information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	3 Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Sodium phosphate, d	libasic, heptahydrate	7782-85-6	100%	Not listed			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Sodium phosphate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	erties					
Appearance: Solid. White, crystalline powder. Odor: No odor. Odor threshold: Data not available pH: Data not available Melting / Freezing point: Data not available Boiling point: Data not available Flash point: Not flammable	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.68 @ 25°C Solubility(ies): 1 g/4 mL in water @ 25°C	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: Na ₂ HPO ₄ •7H ₂ O Molecular weight: 268.07				
Section 10 Stability & Reactivity						
Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures, heat and moisture.						

Hazardous decomposition products: Sodium oxides and phosphorous.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 17,000 mg/kg

Skin corrosion/irritation: Skin-rabbit - 500 mg/24 hours - mild irritation

Serious eye damage/irritation: Eyes-rabbit - 500 mg/24 hours - mild irritation

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause mild drying effect on the respiratory tract and mucous membranes.

Ingestion: Ingestion may cause diarrhea.

Skin: Contact may cause mild irritation.

Eyes: Contact may cause mild irritation.

Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: WC4500000

Section 12 Ecological Information

Toxicity to fish: Rainbow trout (fish, fresh water), LC50: >100 ng/L/96 hours

Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea), EC50: >100 mg/L/48 hours

Toxicity to algae: No data available	
Persistence and degradability: No data available	Bioaccumulative potential: No data available
Mobility in soil: No data available	PBT and vPvB assessment: No data available
Other advarage offectes. An environmental becard con-	act he evoluted in the event of upprofessional hand

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Disposal Considerations Section 13

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information (US DOT / CANADA TDG)

UN/NA number: Not applicable Hazard class: Not applicable Exceptions: Not applicable	Shipping name: N Packing group: N 2012 ERG Guide #	lot Regulated ot applicable Not applicable	Reportable Qu	antity: No	Mar	ine pollutant: No			
Section 15 Regulatory Inform	ation								
A chemical is considered to be listed if the CAS nu	umber for the anhydrous form	is on the Inventory list.							
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification			
Sodium phosphate	Listed	Not listed	Not listed	Listed	Not listed	Not listed			
				1					
Section 16 Additional Information	ation								
The information contained herein is furnished with	out warranty of any kind Em	nlovers should use this i	he information contained base in a furnished without warranty of any kind. Employees about use this information only as a supplement to other information activated by them and must make independent of the information only as a supplement to other information activated by them and must make independent of the information only as a supplement to other information activated by them and must make independent of the information only as a supplement to other information activated by them and must make independent of the information only as a supplement to other information activated by them and must make independent on the information only as a supplement to other information activated by them and must make independent on the information on the infor						

dent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM PHOSPHATE, TRIBASIC, DODECAHYDRATE	
Synonyms	Trisodium Phosphate, 12-Hydrate / TSP / Trisodium Phosphate, Dodec	ahydrate
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classsi Skin corrosi Eye damage GHS Label H314: Caus	d: DANGER :: GHS05 ins: Eyes, Respiratory system ification: on (Category 1B) e (Category 1) information: Hazard statement: es severe skin burns and eye damage.	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Sodium phosphate, tr	ribasic, dodecahydrate	10101-89-0	100%	231-509-8	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE SEVERE IRRITATIONS OR BURNS. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SEVERE IRRITATIONS OR BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Sodium phosphate	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Prop	perties	
Appearance: Solid. White, crystalline powder. Odor: No odor. Odor threshold: Data not available pH: Data not available Melting / Freezing point: 73.3 to 76.7°C (163-171°F) Boiling point: Decomposes Flash point: Not flammable	Evaporation rate (= 1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.62 Solubility(ies): Appreciable (10%) water	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: Data not available Viscosity: Data not available. Molecular formula: Na ₃ PO ₄ •12H ₂ O Molecular weight: 380.12
Section 10 Stability & Reactivity		
Chemical stability: Stable	Hazardous polymerization: Will not occur	

Incompatible materials: Strong oxidizers, strong acids, antipyrine, chloral hydrate, lead acetate, pyrogallol, resorcinol, alkaloids, water and moisture.

Hazardous decomposition products: Sodium oxides and phosphorous.

Conditions to avoid: Excessive temperatures, heat and moisture.

Section 11 **Toxicological Information**

Acute toxicity: Oral-rat LD50: 7400 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed. Skin: Causes severe irritation and/or burns. Eyes: Causes burns. Signs and symptoms of exposure: Cough, shortness of breath, headache, nausea, vomiting. Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: TC9575000 Section 12 **Ecological Information** Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Transport Information (US DOT / CANADA TDG)

UN/NA number: Not applicable Hazard class: Not applicable Exceptions: Not applicable	Shipping name: N Packing group: No 2012 ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qu	antity: No	Mar	ine pollutant: No
Section 15 Regulatory Info	rmation					
A chemical is considered to be listed if the CAS	S number for the anhydrous form	is on the Inventory list.				
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium phosphate	Listed	Not listed	Not listed	Listed	Not listed	Not listed
Section 16 Additional Infor	mation					
The information contained herein is furnished	without warranty of any kind. Emi	plovers should use this i	nformation only as a su	upplement to othe	r information gathere	ed by them and must make indeper

dent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook

Chemical Product and Company Information

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only.

Not for drug, food or household use.

Section 1

Synonyms

Section 2

Signal word: WARNING

Target organs: None known.

Pictograms: GHS07

GHS Classification:

Skin irrit. (Category 2)

Eye irrit. (Category 2A)

H315: Causes skin irritation. H319: Causes serious eye irritation.

80 Northwest Blvd. Nashua. NH 03063

(800) 225-3739

Hazards Identification

Product SODIUM SULFATE, ANHYDROUS

Disodium Sulfate

GHS Label information: Hazard statement:

Precautionary statement:

P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313: If skin irritation occurs: Get medical advice/attention. P3362+P364: Take off contaminated clothing and wash before reuse.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Nommé Chimique		# CAS	%	EINECS			
Sodium sulfate		7757-82-6	100%	231-820-9			
Section 4	First Aid Measures						

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam. Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling.

Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale dusts. Wash thoroughly after handling. Remove and wash clothing before reuse.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Section 8 **Exposure Controls / Personal Protection Chemical Name** ACGIH (TLV) OSHA (PEL) NIOSH (REL) Exposure Limits: Sodium sulfate None established. None established None established Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator. **Physical & Chemical Properties** Section 9 Evaporation rate (= 1): Not applicable Appearance: Solid. White, crystalline powder. Partition coefficient: Data not available Odor: No odor. Flammability (solid/gas): Not applicable Auto-ignition temperature: Not applicable Odor threshold: Data not available. Explosion limits: Lower / Upper: Not applicable Decomposition temperature: Data not available. pH: Data not available. Vapor pressure (mm Hg): Negligible Viscosity: Data not available. Melting / Freezing point: 888°C (1630°F) Vapor density (Air = 1): Data not available Molecular formula: Na₂SO₄ Boiling point: >1000°C (1832°F) Relative density (Specific gravity): 2.698 @ 20°C Molecular weight: 142.04 Flash point: Not applicable Solubility(ies): 22% @ 25°C Section 10 Stability & Reactivity Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Hygroscopic material. Protect from moisture. Incompatibilities with other materials: Molten active metals, including aluminum and magnesium, acids. Hazardous decomposition products: Oxides of sulfur. Section 11 **Toxicological Information** Acute toxicity: Oral-rat LD50: 5,989 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation may irritate nose, throat and lungs. Ingestion: Not generally considered toxic. However, if swallowed, irritation may develop in the mouth, esophagus and stomach. May cause purging. Skin: Prolonged skin contact may cause irritation. Eyes: Contact with eyes may cause irritation. Signs and symptoms of exposure: See Potential health effects above. Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: WE1650000 Section 12 **Ecological Information** Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 **Disposal Considerations** These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: None assigned Shipping name: Not Regulated. Hazard class: None assigned Marine pollutant: No Reportable Quantity: No Exceptions: No Packing group: None assigned Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification DSL NDSL Component TSCA CERLCA (RQ) RCRA code Sodium sulfate Listed Not listed Not listed Listed Not listed Uncontrolled product Section 16 **Additional Information**

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM SULFIDE, NONAHYDRATE	
Synonyms	Sodium Monosulfide, Nonohydrate	
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classi Acute toxicit Acute toxicit Skin corrosid Aquatic toxid GHS Label H302: Harm H311: Toxic H314: Cause H400: Very t	 de contact de la cont	 Precautionary statement: P260: Do not breathe dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Collect spillage. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Sodium sulfide		1313-84-4	>98%	215-211-5		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SEVERE SKIN BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use extinguishing agent suitable for type of surrounding fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Sodium sulfide nonahydrate is a corrosive material and is not flammable. In fire conditions, this material will become the anhydrous form, which is flammable and unstable. Avoid contact with water which has come into contact with Sodium sulfide. Solutions are strongly alkaline and may be corrosive.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Sodium sulfide	Not established	Not established	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: Rotten egg od Odor threshold: Da pH: Data not availab Melting / Freezing po Boiling point: Data not Flash point: Data not	earance: Solid. Pale yellow to brown-black Evaporation rate (=1): Data not available Partition coefficient: Data not available r: Rotten egg odor Flammability (solid/gas): Data not available Auto-ignition temperature: Data not available r threshold: Data not available Explosion limits: Lower / Upper: Data not available Auto-ignition temperature: Data not available Data not available Vapor pressure (mm Hg): Data not available Viscosity: Data not available ing / Freezing point: 50°C (122°F) Vapor density (Air = 1): Data not available Molecular formula: Na2S•9H2O Relative density (Specific gravity): 1.427 @ 20°C Molecular weight: 240.18					ot available Data not available : Data not available : 1 ₂ O	
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable : Deliquescent material. Absort	Hazardo s moisture from	the air. Avoid temperation:	Nill not occur. atures above 300°C ((572°F).		
Incompatible materi toxic.	als: Strong oxidizers, strong ad	ids. non-ferrous	metals. Contact with	almost any acid will p	produce hydro	gen sulfide gas, wł	nich is flammable, explosive and
Hazardous decomp	osition products: Sulfur oxide	and hydrogen s	sulfide gas.				
Section 11	Toxicological Information						
Acute toxicity: Oral Skin corrosion/irrita Serious eye damagg Respiratory or skin Germ cell mutageni Carcinogenity: Dat NTP: No component IARC: No component OSHA: No component Ca Prop 65: This pro Reproductive toxici STOT-single expose STOT-repeated exp Aspiration hazard: Potential health effe Inhalation: Inhalatior Ingestion: Ingestion Skin: Contact cause Eyes: Contact cause Signs and symptom Additional informat	Acute toxicity: Oral-rat LD50: 208 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation causes cough, burning sensation, labored breathing, shortness of breath, and sore throat. Ingestion: Ingestion causes addominal pain, burning sensation, shock or collapse. Skin: Contact causes redness, pain, skin burns, and blisters. Eyes: Contact causes redness, pain, skin burrs, and blisters.						iogen by IARC. łA.
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal gui regulations may be	delines are intended for the of different. Dispose of in acco	isposal of cata ordance with all	log-size quantities o local, state and fed	nly. Federal regula eral regulations or	ations may a contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
UN/NA number:		ame: Sodiu	m sulfide bydrated				
Hazard class: 8 Exceptions: Lim	Packing g ited quantity equal to or less	roup: II than 1 Kg	Reporta 2012 ER	ble Quantity: No G Guide # 153		Mari	i ne pollutant: No
Section 15	Regulatory Information	-					
A chemical is considered	d to be listed if the CAS number for t	ne anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium sulfide		Listed	Not listed	Not listed	Listed	Not listed	OO Not listed

Section 16 Additional Information

SDS No.: SS0850

Section 1 **Chemical Product and Company Information** CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua NH 03063 Not for drug, food or household use. (800) 225-3739 SODIUM SULFITE Product Synonyms Sulfurous Acid, Disodium Salt ; Disodium Sulfite ; Sodium Sulphite Section 2 **Hazards Identification** Signal word: DANGER Precautionary statement: Pictograms: GHS07 / GHS08 P261: Avoid breathing dust. Target organs: Respiratory tract P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P284: Wear respiratory protection. GHS Classification: P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or Acute toxicity, oral (Category 3) doctor if you feel unwell. Skin sensitization (Category 1) P302+P352: IF ON SKIN: Wash with plenty of water and soap. Respiratory sensitization (Category 1) P333+P313: If skin irritation or rash occurs: Get medical attention. Acute aquatic (Category 3) P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing GHS Label information: Hazard statement: P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or H302: Harmful if swallowed. doctor. H317: May cause an allergic skin reaction. P362+P364: Take off contaminated clothing and wash it before reuse. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. P501: Dispose of contents/container to a licensed chemical disposal agency in H402: Harmful to aquatic life. accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Sodium sulfite		7757-83-7	100%	231-821-4				
Section 4	First Aid Measures							

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: PROLONGED EXPOSURE MAY CAUSE IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prope	rties					
Appearance: Solid. V Odor: No odor. Odor threshold: Data pH: Data not available Melting / Freezing po Boiling point: Data not Flash point: Data not	Vhite crystalline powder a not available. e. int: Data not available ot available available	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 1.4 Solubility(ies): 220 g/L in water at 20°C					
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid:	Stable Protect from excessive temper	Hazardo ature.	us polymerization: \	Will not occur.			
Incompatible materia	Is: Strong oxidizers and acids.						
Hazardous decompo	sition products: Toxic and cor	rosive sulfur dio:	xide gas. Sodium sulf	ide residue which is t	flammable, da	ngerous fire risk, si	trong irritant to skin and tissue.
Section 11	Toxicological Information						
Active toxicrity: Oral- Skin corrosion/irrital Serious eye damage Respiratory or skin s Germ cell mutagenio Carcinogenity: Data NTP: No component IARC: No component OSHA: No component STOT-single exposu STOT-repeated expo Aspiration hazard: I Potential health effe Inhalation: Dust or mi Ingestion: May irritate colic and diarrhea, cirr Skin: Dust or mist ma Eyes: Dust or mist ma Signs and symptom Additional informatio	Acute toxicity: Oral-rat LD50: 820 mg/kg ; Inhalation-rat LC50: >5.5 mg/L/4hours Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Dust or mist may irritate the respiratory tract. Ingestion: May irritate the gastrointestinal tract. Estimated to be moderately toxic. May cause severe allergic reactions in some asthmatics. Large doses may cause violent colic and diarrhea, circulatory disturbances, central nervous system depression and even death. Skin: Dust or mist may irritate or burn eyes.						
Section 12	Ecological Information						
Toxicity to fish: Leuciscus idus (fish, fresh water), LC50 = 220-460 mg/L/96 hours Toxicity to daphnia and other aquatic invertebrates: Pagurus bernhardus (Crustacea), LC50 = 343 mg/L/24 hours Toxicity to algae: Chlamydomonas reinhardii (Algae), EC50 = 16-32 mg/L Persistence and degradability: No data available Bioaccumulative potential: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
regulations may be	elines are intended for the di different. Dispose of in acco	sposal of catal dance with all	og-size quantities o local, state and fede	nly. Federal regulations or a	ations may ap	a licensed chem	ical disposal agency.
Section 14	Transport Information						
UN/NA number: Hazard class: Not Exceptions: Not	Not applicableShippapplicablePackiapplicable2012	ing name: N ng group: No ERG Guide #	ot Regulated ot applicable Not applicable	Reportable Qua	ntity: No	Mari	ne pollutant: No
Section 15	Regulatory Information						
A cnemical is considered	to be listed if the CAS number for th	e annydrous form	CERLCA (RO)	RCRA code	DSI	NDSI	WHMIS Classification
Sodium sulfite		Listed	Not listed	D003	Listed	Not listed	Uncontrolled product
Section 16	Additional Information						
The information containe	d herein is furnished without warrant	v of any kind. Em	plovers should use this ir	nformation only as a sur	oplement to othe	er information gathere	d by them and must make indepen-
Section 1 **Chemical Product and Company Information** Page E1 of E2 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd ashua NH 03063 Not for drug, food or household use. (800) 225-3739 SODIUM THIOCYANATE Product Synonyms Sodium Rhodanate / Thiocyanic Acid, Sodium Salt Section 2 **Hazards Identification** Signal word: WARNING Precautionary statement: Pictograms: GHS07 P264: Wash hands thoroughly after handling. Target organs: Liver, Kidneys, Thyroid P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. P330[.] Rinse mouth P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. GHS Classification: P337+P313: If eye irritation persists: Get medical attention Acute toxicity, oral (Category 4) P501: Dispose of contents/container to a licensed chemical disposal agency in Eye irritation (Category 2B) accordance with local/regional/national regulations. GHS Label information: Hazard statement: H302: Harmful if swallowed. H319⁻ Causes serious eve irritation Supplementary Hazard Statement Code(s): EUH032: Contact with acids liberates very toxic gas.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients						
Chemical Name		CAS #	%	EINECS			
Sodium thiocyanate		540-72-7	100%	208-754-4			
Section 4	First Aid Measures						

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Page E2 of E2

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area. Store away from acids, bases, and oxidizers.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

approved respirator.							
Section 9	Physical & Chemical Prop	erties					
Appearance: Solid. Odor: Slight ammoni. Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: Data n Flash point: Not flam	Crystals. acal odor. a not available e int: 287°C (548°F) iot available imable	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density (Relative densit Solubility(ies):	te (= 1): Not applic solid/gas): Data not a ts: Lower / Upper: N e (mm Hg): Data not (Air = 1): Data not av y (Specific gravity): 1350 g/L in water	icable Partition coefficient Auto-ignition tempe Decomposition temp Decomposition tem Viscosity: Data not available Molecular formula: Nolecular weight: 8			ot available Data not available : Data not available
Section 10	Stability & Reactivity						
Chemical stability: S Conditions to avoid:	Stable Excessive temperatures and r	Hazardo noisture.	us polymerization:	Will not occur.			
Incompatible materia	als: Chlorates, nitrates, nitric a	cid, organic perox	xides, oxidizing agent	s, peroxides, potassi	um chloride an	nd sodium chloride	
Hazardous decompo	sition products: Nitrogen and	l sulfur oxides, ca	arbonyl sulfide, hydrog	gen sulfide and carbo	on disulfide.		
Section 11	Toxicological Information						
Acute toxicity: Oral-rat LD50: 764 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May be harmful if inhaled. Inhalation causes cough. See ingestion. Ingestion: Harmful if swallowed. Ingestion causes nausea, vomiting, diarrhea, weakness, confusion, and convulsions. Skin: May cause irritation. Eyes: Causes serious eye irritation. Eyes: Causes serious eye irritation. Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards. Additional information: RTECS #: XL2275000							
Section 12	Ecological Information						
Toxicity to fish: Carassius auratus (fish, fresh water) LC0: 649 mg/L Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (crustacea) EC0: 11 mg/L/48 hours Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be	lelines are intended for the o different. Dispose of in acco	lisposal of catal ordance with all	og-size quantities c local, state and fed	only. Federal regulations or	ations may ap contract with	pply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.
Section 14	Transport Information (US	S DOT / CANAD	DA TDG)				
UN/NA number: Hazard class: No Exceptions: Not	Not applicableShipt applicablePackapplicable2012	bing name: N ing group: No ERG Guide #	lot Regulated ot applicable Not applicable	Reportable Qua	antity: No	Mar	ine pollutant: No
Section 15	Regulatory Information						
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium thiocyanate		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16	Additional Information						
The information containe	d berein is furnished without warra	ty of any kind Em	plovers should use this i	nformation only as a su	innlement to othe	r information gather	ad by them and must make indepen

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	SODIUM THIOSULFATE, PENTAHYDRATE	
Synonyms	Sodium Thiosulfate, 5-Hydrate	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label Precaution	ance or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of d: Not classified s: Not classified ins: None known ification: Not classified information: Hazard statement: Not classified ary statement: Not classified	Supplementary information: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	on 3 Composition / Information on Ingredients								
Chemical Name		CAS #	%	EINECS					
Sodium thiosulfate, pe	entahydrate	10102-17-7	100%	231-867-5 (anhydrous)					
Section 4	First Aid Measures			1					

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: MAY CAUSE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection						
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)			
Exposure Limits:	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established			

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties					
Appearance: White, Odor: No odor. Odor threshold: Dat pH: Data not availabl Melting / Freezing po Boiling point: >100° Flash point: Not flan	crystalline solid. a not available e oint: 48°C (118°F) C (212°F) mable	Evaporation ra Flammability (s Explosion limit Vapor pressure Vapor density Relative densit Solubility(ies):	te (=1): Not applica solid/gas): Data not a ts: Lower / Upper: N e (mm Hg): Negligible (Air = 1): Data not av ty (Specific gravity): Completely soluble in	able vailable ot applicable ailable 1.685 @ 20°C vwater.	Partition co Auto-ignitio Decomposit Viscosity: [Molecular fo Molecular w	efficient: Data no on temperature: I tion temperature: Data not available ormula: Na ₂ S ₂ O ₃ veight: 248.18	ot available Data not available : Data not available 9•5H ₂ O
Section 10	Stability & Reactivity						
Chemical stability: Conditions to avoid	Stable Excessive temperatures and h	Hazardo eat.	us polymerization: \	Vill not occur.			
Incompatible materi	als: Strong oxidizing agents, so	dium nitrate, iod	ides, silver salts, merc	ury salts, lead.			
Hazardous decompo	osition products: Sodium oxide	es, sulfur oxides					
Section 11	Toxicological Information						
Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-respeted exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inflammation and swelling of the larynx and bronchi, spasm, chemical pneumonitis and pulmonary edema, burning, coughing, wheezing, laryngitis, shortness of breath, headache. Ingestion: Nausea and vomiting. Skin: Irritation, itchiness, redness. Eyes: Irritation, rechness, tearing. Signs and symptoms of exposure: See Potential health effects above. Exercise appropriate procedu							
Section 12	Ecological Information						
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.							
Section 13	Disposal Considerations						
These disposal guid regulations may be Section 14	delines are intended for the d different. Dispose of in acco Transport Information (US	rdance with all	log-size quantities o local, state and fede DA TDG)	nly. Federal regula eral regulations or o	contract with	ply to empty cor a licensed chem	itainer. State and/or local ical disposal agency.
UN/NA number: Hazard class: No Exceptions: Not Section 15	Not applicable Shipp t applicable Packi applicable 2012 Regulatory Information	ing name: N ng group: N ERG Guide #	lot Regulated ot applicable Not applicable	Reportable Qua	ntity: No /	Mari	i ne pollutant : No
A chemical is considered	to be listed if the CAS number for the	e anhydrous form	is on the Inventory list.				
Compone	nt	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Sodium thiosulfate, po	entahydrate	Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product
Section 16	Additional Information						
The information containe	d herein is furnished without warran	ty of any kind Em	plovers should use this in	formation only as a sup	plement to other	r information gathere	d by them and must make indepen

Section 1 Cher	emical Product and Company Information	Page E1 of E2
scientific	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product STRONTIUM	I NITRATE	
Synonyms None listed		
Section 2 Haza	ards Identification	
Signal word: DANGER Pictograms: GHS03 / GHS Target organs: Liver, Kidner Contemportation Oxidizing solid (Category 2) Acute toxicity, oral (Category 2) Acute toxicity, oral (Category 2) Acute toxicity, oral (Category 2) Acute toxicity, oral (Category 2) Eye irritation (Category 2) Eye irritation (Category 2) STOT-SE (Category 3) GHS Label information: Ha H272: May intensify fire; oxid H302: Harmful if swallowed. H315: Causes skin irritation. H319: Causes serious eye ir H335: May cause respiratory	S07 leys, Blood, Heart, Spleen, Central nervous system, Lungs) ny 4) azard statement: idizer. I. I. I. I. I. I. I. I. I. I. I. I. I.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles/acids/oxidizers. P261: Avoid breathing dust. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P370+P378: In case of fire: Use water to extinguish. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P332+P313: If skin irritation occurs: Get medical attention. P362+P364: Take off contaminated clothing and wash it before reuse. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P342+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 3	Composition / Information on Ingredients							
Chemical Name		CAS #	%	EINECS				
Strontium nitrate		10042-76-9	100%	233-131-9				
Section 4	First Aid Measures							

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SERIOUS EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO2 or Halon® may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from combustibles/acids/oxidizers.

Section 8	Exposure Controls / Personal Protection							
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)				
	Strontium nitrate	Not established	Not established	Not established				

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Prop	erties						
Appearance: Solid v Odor: No odor Odor threshold: Dat pH: Data not availab Melting / Freezing po Boiling point: Data not Flash point: Data not	vhite crystalline powder ta not available le bint: 570°C (1058°F) not available tt available	Evaporation rate (= 1): Data not available Partition coefficient: Data not available Flammability (solid/gas): Data not available Partition coefficient: Data not available Explosion limits: Lower / Upper: Data not available Auto-ignition temperature: Data not available Vapor density (Air = 1): Data not available Molecular formula: Sr(NO ₃) ₂ Relative density (Specific gravity): 2.986 @ 20°C Molecular weight: 211.63						
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid	Stable : May be explosive when mixed	Hazardous polymerization with reducing agents, mixtures ma	 will not occur. by detonate by heat and s 	hock.				
Incompatible materi	als: Reducing agents, combus	tible materials, organic materials, m	etals and alloys.					
Hazardous decomp	osition products: Nitrogen oxi	des and carbon dioxide gas.						
Section 11	Toxicological Information							
Section 11 toxicological information Acute toxicity: Oral-rat LD50: 2750 mg/kg Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Ca Prop 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: May cause respiratory irritation. Ingestion: Harmful if swallowed. Skin: Causes skin irritation. Signs and symptoms of exposure. May cause nausea, vomiting, diarrhea, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, bluish skin color and coma.								
Section 12	Ecological Information							
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard camut be excluded in the event of unprofessional handling or disposal.								
Section 13 Disposal Considerations								
These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.								
Section 14	Transport Information (U	S DOT / CANADA TDG)						
UN/NA number: Hazard class: 5.1 Exceptions: Limi	UN1507 Shipping Packing g ited quantity equal to or less	name: Strontium nitrate roup: III Repo than 5 Kg 2012	ortable Quantity: No ERG Guide # 140	Marine pollutant: No				

Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.							
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Strontium nitrate	Listed	Not listed	Not listed	Listed	Not listed	Not listed	

Section 16 Additional Information

SDS No.: SS1020

Chemical Product and Company Information Section 1 CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. 80 Northwest Blvd. ashua NH 03063 Not for drug, food or household use. (800) 225-3739 SUCROSE Product Synonyms Cane Sugar; Beet Sugar Section 2 **Hazards Identification** This substance or mixture has not been classified at this time according Precautionary statement(s): to the Globally Harmonized System (GHS) of Classification and Labeling of P261: Avoid breathing dust. Chemicals. P271: Use only outdoors or in a well-ventilated area. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position Signal word: WARNING comfortable for breathing P312: Call a POISON CENTER or doctor/physician if you feel unwell. Pictograms: GHS07 Target organs: None known. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with all local, state and federal regulations. **GHS Classification:** STOT-SE (Category 3) GHS Label information: Hazard statement(s): H335: May cause respiratory irritation.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Sucrose		57-50-1	100%	200-334-9		
Section 4	First Aid Measures					

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY CAUSE RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for use if not contaminated. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection					
Exposure Limiter	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Sucrose	TWA: 10 mg/m ³ (A4)	TWA: 15 mg/m ³	TWA: 10 mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9	Physical & Chemical Pro	perties						
Appearance: White Odor: No odor. Odor threshold: D pH: Data not availa Melting / Freezing Boiling point: Dec Flash point: Not ap	e granular solid. ata not available. ble. point: 185°C (365°F) omposes oplicable	Evaporation r Flammability Explosion lim Vapor pressu Vapor density Relative density Solubility(ies)	Evaporation rate (= 1): Not applicablePartition coefficient: (n-octanol / water): Data not available.Flammability (solid/gas): Data not available.Auto-ignition temperature: Data not availableExplosion limits: Lower / Upper: Not applicableDecomposition temperature: Data not available./apor pressure (mm Hg): NegligibleViscosity: Data not available./apor density (Air = 1): Data not availableNolecular formula: C12H22O11Relative density (Specific gravity): 1.58Molecular weight: 342.30					
Section 10	Stability & Reactivity							
Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures. Fille of the stability of the stabili								
Incompatible materials: Strong oxidizers.								
Hazardous decom	position products: Oxides of c	arbon.						
Section 11	Toxicological Information	I						
Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory effects. STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation may cause respiratory irritation. Ingestion: Not expected to be a health hazard. Skin: Not expected to be a health hazard. Eyes: Contact with eyes may cause transient irritation. Since and summators of Karpenser.						nogen by IARC. HA. řects.		
Section 12	Ecological Information							
Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13	Disposal Considerations							
These disposal guregulations may b	idelines are intended for the e different. Dispose of in acc	disposal of cata ordance with a	alog-size quantities o Il local, state and fed	only. Federal regul eral regulations or	ations may ap contract with	pply to empty co a licensed chem	ntainer. State and/or local nical disposal agency.	
Section 14	Transport Information							
UN/NA number: Hazard class: N Exceptions: No	Not applicableShiplot applicablePackot applicable2012	ping name: king group: ? ERG Guide #	Not Regulated Not applicable # Not applicable	Reportable Qu	antity: No	Mar	rine pollutant: No	
Section 15	Regulatory Information							
A chemical is consider	ed to be listed if the CAS number for	the anhydrous form	n is on the Inventory list.					
Compor	ient	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Sucrose		Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product	
Section 16	Additional Information							
The information contai	ned herein is furnished without warra	inty of any kind. Er	mployers should use this i	nformation only as a su	pplement to othe	er information gather	ed by them and must make indepen	

Section 1	Chemical Product and Company Information	
Scie	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product SUL	FURIC ACID, CONCENTRATE, 95-98%	
Synonyms Sulf	uric Acid / Hydrogen Sulfate / Battery Acid	
Section 2	Hazards Identification	
Signal word: DAN Pictograms: GHS Target organs: R GHS Classificatio Skin corr. (Categor GHS Label inform H314: Causes sev	NGER S05 Lespiratory system, skin, eyes, teeth. on: ry 1A) hation: Hazard statement(s): ere skin burns and eye damage.	 Precautionary statement(s): P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor. P363: Wash contaminated clothing before reuse. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on	Ingredients			
Chemical Name		CAS #	%	EINECS	
Sulfuric acid		7664-93-9	95-98%	231-639-5	
Section 4	First Aid Measures				

INGESTION: Harmful or fatal if swallowed. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Harmful or fatal if inhaled. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Causes severe burns. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Causes severe burns. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Product is a water reactive material, DO NOT USE WATER! Use dry chemicals only for extinguishing.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water on combustibles burning in vicinity of acid but use care as water applied to the acid results in severe generation of heat and may cause boiling and splattering. Sulfuric acid will not burn, but is capable of igniting finely divided combustible materials on contact. May react violently with organic materials and water with the evolution of heat. Contact with reactive metals, e.g. aluminum, may result in the generation of flammable hydrogen gas.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Hygroscopic material. Never add water to this solution, always add acid, slowly and in small amounts to water to avoid splattering.

Section 8	Exposure Controls / Personal Protection					
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
	Sulfuric acid	TWA: 0.2 mg/m ³ (A2)	TWA: 1 mg/m ³	TWA: 1 mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: Use a chemical fume hood and/or wear a NIOSH/MSHA-approved respirator.

Physical & Chemical Properties Section 9 Appearance: Clear, oily liquid. Evaporation rate (= 1): Data not available. Partition coefficient: (n-octanol / water): Data not available. Odor: Slightly pungent odor. Flammability (solid/gas): Data not available. Auto-ignition temperature: Data not available. Odor threshold: Data not available. Explosion limits: Upper/Lower: Data not available. Decomposition temperature: 340°C (644°F) Vapor pressure (mm Hg): Variable Viscosity: Data not available. pH: <1.5 acidic, in solution. Molecular formula: H₂SO₄ Melting / Freezing point: <11°C (52°F) Vapor density (Air = 1): Data not available. Boiling point: Approximately 275-325°C (527-617°F) Relative density (Specific gravity): 1.84 Molecular weight: 98.01 Flash point: Not flammable. Solubility(ies): Complete in water. Section 10 Stability & Reactivity Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Avoid contact with water and heat. Avoid temperatures above 250°C (482°F). Incompatible materials: Alkalies, amines, anhydrides, combustibles, organics, oxidizers, powdered metals. Hazardous decomposition products: Sulfur trioxide and/or sulfur dioxide. Hydrogen gas by reaction with metals. Section 11 Toxicological Information Acute toxicity: Oral-rat LD50: 2140 mg/kg ; Inhalation-rat LC50: 510 mg/m3/2 hours Skin corrosion/irritation: Skin-rabbit - causes burns Serious eye damage/irritation: Eyes-rabbit - causes burns Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: This product contains a chemical known to be a human carcinogen. IARC classified: Group 1: Carcinogenic to humans. [Acid mists, strong inorganic] OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation of this material is irritating and/or corrosive to the nose, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema which can result in shortness of breath, wheezing, choking, chest pain and impairment of lung function. Inhalation of high concentrations may result in permanent lung damage. Repeated inhalation may cause bronchitis, and also etching of dental enamel followed by the erosion of the enamel and dentine with loss of tooth substance. Ingestion: Ingestion may cause irritation and/or burns to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration. Skin: Skin contact can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Eyes: Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage. Signs and symptoms of exposure: Burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Additional information: RTECS #: WS5600000 Section 12 **Ecological Information** Toxicity to fish: LC50 - Gambusia affinis (Mosquito fish) - 42 mg/l - 96 h (sulfuric acid) Toxicity to daphnia and other aquatic invertebrates: Crangon crangon (crustacea) 70-80 mg/l/48 hours Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 **Disposal Considerations** These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 Transport Information UN/NA number: UN1830 Shipping name: Sulfuric acid Hazard class: 8 Packing group: || Reportable Quantity: 1,000 lbs (454 kg) Marine pollutant: No Exceptions: Limited quantity equal to or less than 1 L 2012 ERG Guide # 137 Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. WHMIS Classification RCRA code DSL NDSL Component TSCA CERLCA (RQ) Sulfuric acid Listed 1000 lbs (454 kg) D002 Listed Not listed E: D1A ¥

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product U	INIVERSAL PH INDICATOR	
Synonyms U	Iniversal Indicator	
Section 2	Hazards Identification	
Signal word: D Pictograms: G Target organs: GHS Classifica Flammable liquid Acute toxicity, in Skin irritation (C Eye irritation (C Eye irritation (C Eye irritation (C STOT-SE (Categ GHS Label info H225: Highly fla H315: Causes s H319: Causes s H319: Causes s H311: Toxic if inl H336: May caus H371: May caus	DANGER BHS02 / GHS07 / GHS08 / GHS06 Eyes, Central nervous system, Liver, Kidneys.	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P260: Do not breathe mist/vapours/spray. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. P332+P313: If skin irritation occurs: Get medical attention. P337+P313: If eye irritation persists: Get medical attention. P337+P333: Store in a well-ventilated place. Keep container tightly closed. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3 Composition / Information on Ingredients					
Chemical Name	CAS #	%	EINECS		
Ethyl alcohol, denatured*	64-17-5	76.00%	200-578-6		
Water	7732-18-5	23.85%	231-791-2		
Bromothymol blue	76-59-5	0.06%	200-971-2		
Phenolphthalein	77-19-8	0.06%	201-004-7		
Methyl red	845-10-3	0.025%	212-682-9		
Thymol blue	62625-21-2	0.005%	263-650-6		
*Denaturants:					
Isopropyl alcohol	67-63-0		200-661-7		
Methanol	67-56-1		200-659-6		
Methyl isobutyl ketone	108-10-1	1	203-550-1		

Section 4 First Aid Measures

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors formed from this product are heavier than air and may travel along the ground to a distant source of ignition and flash back instantly. Flame may not be visible in daylight.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection					
Exposuro Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Limits:	Ethanol	STEL: 1000 ppm / 1880 mg/m ³ (A3)	TWA: 1000 ppm / 1900 mg/m ³	TWA: 1000 ppm / 1900 mg/m ³		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties						
Appearance: Clear, green liquid. Odor: Mild characteristic odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: -114°C (-173°F)* Boiling point: 75-80°C (173-174°F)* Elash point: Approximately 21°C (70°E)	Evaporation rate (Butyl acetate = 1): 4.1* Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: 4.0%(V) / 20.0%(V)* Vapor pressure (mm Hg): 44.6 @ 20°C (68°F)* Vapor density (Air = 1): 1.59* Relative density (Specific gravity): 0.794 @ 60°F* Solubility(ise): Soluble in water	Partition coefficient: Data not available Auto-ignition temperature: 400°C (752°F)* Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Mixture Molecular weight: Mixture				
Section 10 Stability & Reactivity						

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition.

Incompatible materials: Strong oxidizers, inorganic acids and halogens.

Hazardous decomposition products: Oxides of carbon.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 7060 mg/kg; Inhalation-rat LC50: 124.7 mg/l/4hours [Ethanol]

Skin corrosion/irritation: Skin-rabbit - Slight irritant.

Serious eye damage/irritation: Eyes-rabbit - Severe irritant.

Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC classified: Group 3: Not classifiable as to its carcinogenicity to humans. [Isopropanol]

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation may cause dizziness, drowsiness, nausea, vomiting, inability to concentrate and irritation of the throat.

Ingestion: Ingestion causes dizziness, drowsiness, decreased reaction, euphoria, nausea, vomiting, staggering gait and coma.

Skin: Contact with skin causes irritation defatting on prolonged contact.

Eyes: Contact with eyes may cause blindness.

Signs and symptoms of exposure: See Potential health effects above.

Additional information: RTECS #: KQ6300000 [Ethanol]

Section 12 Ecological Information

Toxicity to fish: Oncorhynchus mykiss (fish, fresh water), LC50 = 11,200 mg/l/24 hours [Ethanol] Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacia), EC50 = 10,800 mg/l/24 hours [Ethanol, 99.8% pure] Toxicity to algae: Chlorella pyrenoidosa (Algae), EC50 = 9,310 mg/l/growth rate [Ethanol, absolute] Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. **Disposal Considerations** Section 13 These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: UN1170 Shipping name: Ethanol solution Hazard class: 3 Packing group: || Reportable Quantity: 5,000 lbs (2270 kg) Marine pollutant: No ERG Guide # 127 Exceptions: Limited quantity equal to or less than 1 L Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list. DSL CERLCA (RQ) RCRA code NDSL WHMIS Classification Component TSCA Ethanol Listed Not listed D001 Listed Not listed B2: D2B Methanol Listed 5.000 lbs. U154 Listed Not listed B2: D1B: D2A: D2B Isopropanol Listed Not listed Not listed I isted Not listed B2: D2B

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	ZINC METAL	
Synonyms	Zinc / Zinc Metal Mossy	
Section 2	Hazards Identification	
This substan to the Global Chemicals. Signal word: Pictograms: Target organ: GHS Classifie GHS Label in Precautionar	It is a second s	Supplemental information: SHARP EDGES! ABRASIVE TO SKIN. USE CARE WHEN HANDLING. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients				
Nommé Chimique		# CAS	%	EINECS	
Zinc, mossy		7440-66-6	100%	231-175-3	
Section 4	First Aid Measures				

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED AS FUME. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. **EYE CONTACT:** MAY CAUSE MECHANICAL IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE DERMATITIS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use triclass, dry chemical fire extinguisher. Do NOT use water on fire where molten metal is present.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Molten metals produce fume, vapor and/or dust that may be toxic and/or a respiratory irritant. Metal reacts with oxidizing agents. Small chips, turnings, and dust with ignite readily. Dust cloud may be explosive.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Section 7	Handling & Storage	Page E2 of E2
Read label on container adequate ventilation.	er before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. U Wash thoroughly after handling.	lse with
Handling: Use with ad handling. Remove and	lequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale fumes from molten metals. Wash thoroughl d wash clothing before reuse.	y after
Storage: Store in a co	ol, dry, well-ventilated area away from incompatible substances.	

Section 8	Exposure Controls / Personal Protection					
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
	Particulates not otherwise classified	None established	TWA: 5 mg/m ³ respirable fraction	None established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low. Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

Section 9 Physical & Chemical Prop	erties	
Appearance: Solid. Metallic silver-gray Odor: No odor. Odor threshold: Data not available. pH: Data not available. Melting / Freezing point: 419°C (787°F) Boiling point: 907°C (1665°F) Flash point: Not applicable	Evaporation rate (=1): Not applicable Flammability (solid/gas): Not applicable Explosion limits: Lower / Upper: Not applicable Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): Data not available Relative density (Specific gravity): 7.12 Solubility(ies): Insoluble	Partition coefficient: Data not available Auto-ignition temperature: Not applicable Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Zn Molecular weight: 65.38
Section 10 Stability & Pasetivity		

Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Excessive temperatures. Hydrogen may evolve when in contact with water or damp air. Incompatibilities with other materials: Strong acids, halogens, acids, alkalies and water. Hazardous decomposition products: Zinc oxides and zinc fumes. Reacts with water, acids or alkalies to generate hydrogen gas. Section 11 **Toxicological Information** Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation of dust or fume may cause irritation to eyes, nose, throat, and cause a metallic taste in the mouth. May cause metal fume fever or produce flu-like symptoms. Ingestion: May be harmful if swallowed.

Skin: May cause dermatitis.

Eyes: Contact with eyes may cause mechanical irritation.

Signs and symptoms of exposure: Over-heating of alloy can produce metal fumes and oxides. Over-exposure to dust and fumes may cause mouth, eye, and nose irritation. Additional information: RTECS #: None assigned

Section 12 Ecological Information

Toxicity to fish: No data available

Toxicity to daphnia and other aquatic invertebrates: No data available

Toxicity to algae: No data available

 Persistence and degradability:
 No data available
 Bioaccumulative potential:
 No data available

 Mobility in soil:
 No data available
 PBT and vPvB assessment:
 No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14	Transport	Information						
UN/NA number: N Shipping name: N Hazard class: Nor	None assigned Not Regulated. ne assigned	Packing group: Nor	ne assigned	Reportable Quantit	y: No Marine po	ollutant: No	Exceptions: N	lo
Section 15	Regulatory	y Information						
A chemical is consider	ed to be listed if th	e CAS number for the an	hydrous form is a	on the Inventory list.				
Compo	nent		TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification
Zinc			Listed	Not listed	Not listed	Listed	Not listed	Not listed
Section 16	Additional	Information						
The information contai	nod horoin in furni	abod without warranty of	any kind Emplo	uara abauld upo this infor	motion only on a symple	mont to other inf	restion acthored by	them and must make independent

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	ZINC METAL	
Synonyms	Zinc / Zinc Metal Foil	
Section 2	Hazards Identification	
This substa to the Glob Chemicals. Signal word Pictograms Target orga GHS Classi GHS Label Precaution	Ance or mixture has not been classified as hazardous according ally Harmonized System (GHS) of Classification and Labeling of 4: Not classified 5: Not classified 5: Not classified 5: Not classified 5: Information: Hazard statement(s): Not classified 5: Ant classif	Supplemental information: SHARP EDGES! ABRASIVE TO SKIN. USE CARE WHEN HANDLING. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients						
Nommé Chimique		# CAS	%	EINECS			
Zinc, foil		7440-66-6	100%	231-175-3			
Section 4	First Aid Measures						

INGESTION: MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED AS FUME. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. EYE CONTACT: MAY CAUSE MECHANICAL IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY CAUSE DERMATITIS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use triclass, dry chemical fire extinguisher. Do NOT use water on fire where molten metal is present.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Molten metals produce fume, vapor and/or dust that may be toxic and/or a respiratory irritant. Metal reacts with oxidizing agents. Small chips, turnings, and dust with ignite readily. Dust cloud may be explosive.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Section 7	Handling & Storage
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Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling

Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale fumes from molten metals. Wash thoroughly after handling. Remove and wash clothing before reuse.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Pro	tection		
Exposure Limite:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Exposure Linnts.	Particulates not otherwise classified	None established	TWA: 5 mg/m ³ respirable fraction	None established

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties		
Appearance:Solid.Metallic silver-grayEvaporOdor:No odor.FlammaOdor threshold:Data not available.ExplosipH:Data not available.Vapor pMelting / Freezing point:419°C (787°F)Vapor dBoiling point:907°C (1665°F)RelativeFlash point:Not applicableSolubilit	tion rate (= 1): Not applicable bility (solid/gas): Not applicable on limits: Lower / Upper: Not applicable ressure (mm Hg): Data not available ensity (Air = 1): Data not available density (Specific gravity): 7.12 ty(ies): Insoluble	Partition coefficient: Data not available Auto-ignition temperature: Not applicable Decomposition temperature: Data not available. Viscosity: Data not available. Molecular formula: Zn Molecular weight: 65.38

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures. Hydrogen may evolve when in contact with water or damp air.

Incompatibilities with other materials: Strong acids, halogens, acids, alkalies and water.

Hazardous decomposition products: Zinc oxides and zinc fumes. Reacts with water, acids or alkalies to generate hydrogen gas.

Section 11 **Toxicological Information**

Acute toxicity: Data not available Skin corrosion/irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-single exposure: Data not available STOT-repeated exposure: Data not available Aspiration hazard: Data not available Potential health effects: Inhalation: Inhalation of dust or fume may cause irritation to eves, nose, throat, and cause a metallic taste in the mouth. May cause metal fume fever or produce flu-like symptoms. Ingestion: May be harmful if swallowed. Skin: May cause dermatitis. Eves: Contact with eves may cause mechanical irritation. Signs and symptoms of exposure: Over-heating of alloy can produce metal fumes and oxides. Over-exposure to dust and fumes may cause mouth, eye, and nose irritation. Additional information: RTECS #: None assigned Section 12 **Ecological Information** Toxicity to fish: No data available Toxicity to daphnia and other aquatic invertebrates: No data available Toxicity to algae: No data available Persistence and degradability: No data available Bioaccumulative potential: No data available Mobility in soil: No data available PBT and vPvB assessment: No data available Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Section 13 **Disposal Considerations** These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency. Section 14 **Transport Information** UN/NA number: None assigned Shipping name: Not Regulated. Marine pollutant: No Hazard class: None assigned Packing group: None assigned Reportable Quantity: No Exceptions: No Section 15 **Regulatory Information** A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list WHMIS Classification RCRA code DSL NDSL Component TSCA CERLCA (RQ) Zinc Listed Not listed Not listed Listed Not listed Not listed

Section 16 Additional Information

Section 1	Chemical Product and Company Information	Page E1 of E2
SC	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product ZIN	NC NITRATE, HEXAHYDRATE	
Synonyms Nite	ric Acid, Zinc Salt / Zinc Dinitrate	
Section 2	Hazards Identification	
Signal word: DA Pictograms: GH Target organs: M GHS Classificati Oxidizing solid (C Acute toxicity (Ca Skin irritation (Cat Eye irritation (Cat STOT-SE (Catego GHS Label inforn H272: May intens H302: Harmful if s H315: Causes ski H319: Causes sei H335: May cause	ANGER ISO3 / GHS07 None known	 Precautionary statement: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220: Keep away from clothing/incompatible/combustible materials. P221: Take any precaution to avoid mixing with combustibles/reducing agents. P261: Avoid breathing dust. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. P370+P378: In case of fire: Use water to extinguish. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301+P330: IF SWALLOWED: Rinse mouth. P312: Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical attention. P322-P352: IF ON SKIN: Wash with plenty of water and soap. P332+P343: If skin irritation occurs: Get medical attention. P362+P354: Take off contaminated clothing and wash it before reuse. P405: Store locked up. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Zinc nitrate		10196-18-6	100%	231-943-8		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use water. Do not use dry chemicals or foams. CO₂ or Halon[®] may provide limited control.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Not combustible but enhances combustion of other substances. Risk of fire and explosion on contact with reducing agents.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Recover for reuse if not contaminated. Remove all sources of ignition. Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from ignition sources.

Section 8	Exposure Controls / Personal Protection					
	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
Exposure Linnes.	Zinc nitrate	Not established	Not established	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAapproved respirator.

Section 9 Physical & Chemical Properties							
Appearance: Solid. White crystals or flakes Odor: No odor. Odor threshold: Data not available. pH: 5.1 (5% solution) Melting / Freezing point: 36.4°C (97.52°F) Boiling point: 105 -130°C (221-266°F) Flash point: Not flammable	Evaporation rate (=1): Data not available Flammability (solid/gas): Data not available. Explosion limits: Lower / Upper: Data not available Vapor pressure (mm Hg): Data not available Vapor density (Air = 1): 10.3 Relative density (Specific gravity): 2.065 Solubility(ies): Soluble in water.	Partition coefficient: Data not available Auto-ignition temperature: Data not available Decomposition temperature: 105 -131°C (221-268°F) Viscosity: Data not available. Molecular formula: Zn(NO ₃) ₂ •6H ₂ O Molecular weight: 297.48					

Section 10 Stability & Reactivity

Chemical stability: Stable

Hazardous polymerization: Will not occur.

Conditions to avoid: Excessive temperatures, heat, sparks, open flame and other sources of ignition.

Incompatible materials: Combustible materials, reducing agents, organic materials, metal powders, stannous chloride, phosphorous, thiocyanates, cyanides, sodium hypophosphite.

Hazardous decomposition products: Nitrogen oxides and toxic fumes of zinc oxides.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 1190 mg/kg ; Dermal-rabbit LD50: 2400 mg/kg

Skin corrosion/irritation: Irritant

Serious eye damage/irritation: Irritant Respiratory or skin sensitization: Data not available

Germ cell mutagenicity: Data not available

Carcinogenity: Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Data not available

STOT-single exposure: Data not available

STOT-repeated exposure: Data not available

Aspiration hazard: Data not available

Potential health effects:

Inhalation: Inhalation causes cough, sore throat.

Ingestion: Ingestion causes abdominal cramps, abdominal pain, blue lips, fingernails and skin, nausea.

Skin: Contact with skin causes redness and pain.

Eyes: Contact with eyes causes redness, pain and blurred vision.

Signs and symptoms of exposure: Exercise appropriate procedures to minimize potential hazards.

Additional information: RTECS #: ZH4775000

Section 12 Ecological Information

Toxicity to fish: No data available

Mobility in soil: No data available

Toxicity to daphnia and other aquatic invertebrates: No data available

Toxicity to algae: No data available

Persistence and degradability: No data available Bioaccumulative potential: No data available

PBT and vPvB assessment: No data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14
Transport Information (US DOT / CANADA TDG)

UN/NA number: UN1514 Hazard class: 5.1 Exceptions: Limited quantity equ	A number:UN1514Shipping name:Zinc nitrated class:5.1Packing group:IIotions:Limited quantity equal to or less than 1 Kg		Reportable Quantity: Yes 2012 ERG Guide # 140			Marine pollutant: No		
Section 15 Regulatory Info	Section 15 Regulatory Information							
A chemical is considered to be listed if the CA	S number for the anhydrous form i	is on the Inventory list.						
Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification		
Zinc nitrate	Listed	1000 lbs (454 kg)	Not listed	Not listed	Not listed	(C; D2B)		
Section 16 Additional Info	rmation							

Section 1	Chemical Product and Company Information	Page E1 of E2
	80 Northwest Blvd. Nashua, NH 03063 (800) 225-3739	CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300 For laboratory use only. Not for drug, food or household use.
Product	ZINC SULFATE, MONOHYDRATE	
Synonyms	Sulfuric Acid, Zinc Salt (1:1), Monohydrate	
Section 2	Hazards Identification	
Signal word Pictograms Target orga GHS Classi Acute toxicit Eye damage Aquatic acut Aquatic chro GHS Label H302: Harm H318: Causa H400: Very t H410: Very t	I: DANGER : GHS05 / GHS07 / GHS09 ns: None known fication: y, oral (Category 4) e (Category 1) e (Category 1) nic (Category 1) nic (Category 1) information: Hazard statement: ful if swallowed. es serious eye damage. oxic to aquatic life. oxic to aquatic life with long lasting effects.	 Precautionary statement: P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor. P273: Avoid release to the environment. P391: Collect spillage. P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Ca Prop 65 - This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 3	Composition / Information on Ingredients					
Chemical Name		CAS #	%	EINECS		
Zinc sulfate, monohydrate		7446-19-7	100%	231-793-3 (anhydrous)		
Section 4	First Aid Measures					

INGESTION: HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Carbon dioxide, dry chemical, dry sand, alcohol foam.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water carefully as material will react with water to form acidic solution.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8	Exposure Controls / Personal Protection					
Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)		
	Particles not otherwise classified	Not established	TWA: 15 mg/m ³ total dust	Not established		

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHAhirator

Section 9	Physical & Chemical Prop	perties						
Appearance: Solid. Odor: No odor. Odor threshold: Da pH: Data not availab Melting / Freezing p Boiling point: Data Flash point: Data n	White crystals or powder ta not available. le. oint: Decomposes not available ot available	ate (= 1): Data not a (solid/gas): Data not a its: Lower / Upper: E re (mm Hg): Data not (Air = 1): Data not av ity (Specific gravity): : Soluble in water.	vailable available. Data not available available ailable 3.35 @ 77°F	Partition c Auto-igniti Decompos Viscosity: Molecular Molecular	oefficient: Data n ion temperature: sition temperature Data not available formula: ZnSO ₄ +t weight: 179.45	ot available Data not available e: >500°C e. H ₂ O		
Section 10	Stability & Reactivity							
Chemical stability: Conditions to avoid	Chemical stability: Stable Hazardous polymerization: Will not occur. Conditions to avoid: Temperatures above 250°C. Female and a stability of the stabi							
		iy bases.						
Hazardous decomp	osition products: Zinc oxides	and sulfur oxide	S.					
Section 11	Toxicological Information							
Acute toxicity: Oral-rat (male) LD50: 920 mg/kg ; Dermal-rat LD50: >2,000 mg/kg Skin corrosion/Irritation: Data not available Serious eye damage/irritation: Data not available Respiratory or skin sensitization: Data not available Germ cell mutagenicity: Data not available Carcinogenity: Data not available NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: Data not available STOT-repeated exposure: Data not available STOT-repeated exposure: Data not available Potential health effects: Inhalation: Inhalation: Inhalation may cause cough, sore throat, shortness of breath. Ingestion: Ingestion causes adominal pain, diarrhea, nausea, vomiting. Skin: Contact causes redness. Eyes: Contact causes redness. Eyes: Contact causes redness, pain, and loss of vision.<								
Section 12	Ecological Information							
Toxicity to fish: LC50 Labeo rohita (fresh water fish) 65 mg/l/96 hr (small fish), 77.5 mg/l/96 hr (large fish) Toxicity to daphnia and other aquatic invertebrates: LC50 Ceriodaphnia dubia (Water flea) 199.3 mg/L/48 hr; renewal Toxicity to algae: LC50 Chlorella vulgaris (Green algae) 5.0 mg/L/24 hr, 40 hr; static Persistence and degradability: No data available Mobility in soil: No data available Ptr adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.								
Section 13	Disposal Considerations							
These disposal gui regulations may be	delines are intended for the edifferent. Dispose of in acc	disposal of cata ordance with al	alog-size quantities o I local, state and fed	only. Federal regul eral regulations or	ations may a contract with	npply to empty con a licensed chem	ntainer. State and/or local nical disposal agency.	
Section 14	Transport Information (U	S DOT / CANA	DA TDG)					
UN/NA number: Hazard class: No Exceptions: No	Not applicableShipot applicablePackt applicable2012	ping name: I king group: N LERG Guide #	Not Regulated Not applicable Not applicable	Reportable Qua	antity: No	Mar	ine pollutant: No	
Section 15 Regulatory Information								
A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.								
Compone	ent	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	WHMIS Classification	
Zinc sulfate, monohy	drate	Listed	Not listed	Not listed	Listed	Not listed	Uncontrolled product	
Section 16	Additional Information							
				· · · ·				