Material Safety Data Sheet

Material Name: Sodium Aluminate

ID: C1-219

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Name: Sodium Aluminate
Product Use: For Commercial Use
Synonyms: Aluminate, Sodium; Aluminum Sodium Oxide; Sodium Aluminate; Sodium Aluminum Dioxide; Sodium Aluminum Oxide; Sodium Meta-Aluminate

Supplier Information

Chem One Ltd.
14140 Westfair East Drive
Houston, Texas 77041-1104

Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
1302-42-7	Sodium Aluminate	100%

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview

Sodium Aluminate is a white solid in granular or powder form. May cause severe eye irritation or burns. May be harmful or fatal if swallowed. May cause severe skin and respiratory tract irritation or burns. This material may burn if highly heated. Toxic fumes can be produced if heated to decomposition, or if involved in a fire. Emergency responders should wear proper personal protective equipment for the releases to which they are responding.

Hazard Statements

DANGER! CORROSIVE. CAN CAUSE BURNS TO ALL CONTAMINATED TISSUE. HARMFUL IF INHALED, INGESTED, IN OR CONTACT WITH SKIN OR EYES. MAY BE FATAL IF SWALLOWED. Keep from contact with clothing. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Potential Health Effects: Eyes

Contact of this product or solutions of this product with the eyes will cause severe irritation, pain, reddening, watering and burns. Prolonged contact with this product or solutions of this product may cause blindness.

Potential Health Effects: Skin

Depending on the duration of skin contact, skin overexposures may cause reddening, discomfort, severe irritation and burns. Repeated skin over-exposures to low concentration can result in dermatitis (inflammation and reddening of skin).

Potential Health Effects: Ingestion

Ingestion of this product can irritate or burn the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include nausea, vomiting and diarrhea and severe dehydration. Ingestion of this product may be fatal.

Potential Health Effects: Inhalation

Breathing dusts or particulates generated by this product can lead to severe irritation of the nose, throat or respiratory system. Symptoms of such exposure could include coughing, shortness of breath, and difficulty breathing. Inhalation may result in development of chemical pneumonitis or edema (a potentially fatal accumulation of fluid in the lungs). Repeated or prolonged inhalation of Sodium Aluminate dust or mists or sprays from solutions can cause perforation of the nasal septum and may cause permanent damage to lung tissue which results in reduced lung capacity or emphysema. Industrial exposure to high concentrations of aluminum containing airborne dusts has resulted in a number of cases of occupational pneumoconiosis. Most of these exposures were chronic, and other substances were involved in nearly all instances.

Potential Health Effects: Other

High levels of brain aluminum are associated with dialysis encephalopathy syndrome. Amyotrophic lateral sclerosis, another severe neurological disease, has also been related to aluminum accumulation in the brain. Ingestion of large amounts of aluminum salts may cause phosphorous depletion. This phosphorous depletion syndrome is characterized by anorexia, malaise, and muscle weakness, and prolonged aluminum antacid therapy may cause urinary calculi, osteomalacia (lack of calcium deposition in new bone tissue), and osteoporosis. A low phosphorus diet, diarrhea, excessive phosphorus losses from malabsorption, and restoration of renal function after a kidney transplant increase the likelihood of the syndrome. Following large oral doses of aluminum, interference with phosphate absorption occurs, which results in rickets.

* * * Section 3 - Hazards Identification (Continued) * * *

Potential Health Effects: Other (continued)

Aluminum toxicity also is manifested by abnormal accumulation in bone and lack of calcium deposition, as noted previously. Recently reported adverse effects of aluminum in humans have resulted from inhalation or ingestion of aluminum in concentrations many times greater than the amounts present under normal circumstances of potential industrial exposure.

HMIS Ratings: Health Hazard: 3 **Fire Hazard:** 1 **Physical Hazard:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. If breathing has stopped, apply artificial respiration. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically. To relieve the GI distress caused by swallowing aluminum salts the degree of dehydration and electrolyte loss caused by vomiting and diarrhea must be determined, and corrected by IV infusions of appropriate solutions. When patient history is unattainable, diagnosis depends on the demonstration of large amt of aluminum in vomitus, stomach contents or feces. Deferoxamine has been used to treat dialysis encephalopathy and osteomalacia with symptomatic relief reported. The use of deferoxamine for aluminum toxic dialysis patients has been suggested for serum levels of aluminum between 100 and 200 µg/mL. Deferoxamine also has been used to diagnose aluminum related osteodystrophy. After a deferoxamine infusion of 40 mg/kg over 2 hours, an increment in plasma aluminum concentration of 200 µg/L identified 35 of 37 patients with biopsy-proven aluminum related osteodystrophy (sensitivity, 94%; specificity, 50%). Calcium disodium ethylenediaminetetraacetic acid does not appear as effective as deferoxamine in chelating aluminum. Especially in dialysis patients, aluminum containing medications should be reduced.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not flammable
Method Used: Not applicable
Upper Flammable Limit (UEL): Not applicable
Lower Flammable Limit (LEL): Not applicable
Auto Ignition: Not applicable
Flammability Classification: Not applicable
Rate of Burning: Not applicable

General Fire Hazards

When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases. Finely divided dusts of this product can cause a hazard of an air/dust explosion and result in fire.

Hazardous Combustion Products

This product decomposes to form sodium hydroxide and aluminum oxides.

Extinguishing Media

In case of fire, use water fog, dry chemical, carbon dioxide or regular foam.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health: 3 **Fire:** 1 **Reactivity:** 0 **Other:** Oxidizer

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Small releases can be cleaned-up wearing gloves, goggles, dust mask and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Place all spill residues in an appropriate container and seal. Thoroughly wash the area after a spill or leak clean-up. Avoid contamination of soil, and prevent spill residue from running to groundwater or storm drains.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling. Avoid accumulation of dusts of this product. Remove contaminated clothing immediately. Keep away from all heat sources. Solutions of Sodium Aluminate may be corrosive to some metals. See Section 10 (Reactivity and Incompatibilities) for additional information.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

The corrosive properties of Sodium Aluminate, especially in solution, are similar to sodium hydroxide. It is recommended that the recommended exposure limits for sodium hydroxide be followed.

B: Component Exposure Limits

The exposure limits given are for Sodium Hydroxide (1310-73-2)

ACGIH: 2 mg/m^3 (ceiling) STEL
OSHA: 2 mg/m^3 TWA
NIOSH: 2 mg/m^3 (ceiling) STEL

Engineering Controls

Use general mechanical ventilation and local exhaust in confined or enclosed spaces.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent Standards of Canada. Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles). When handling solutions, goggles with side shields should be used. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

* * * Section 8 - Exposure Controls / Personal Protection (Continued) * * *

Personal Protective Equipment: Respiratory

If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection.

Personal Protective Equipment: General

Have an eyewash fountain and safety shower available in the work area. Use good hygiene practices when handling this material.

* * * Section 9 - Physical & Chemical Properties * * *

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	White powder or granules	**Odor:**	Odorless
Physical State:	Solid	**pH:**	11.0-12.0 (1% solution)
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	Not applicable	**Freezing/Melting Point:**	1650 deg C (3002 deg F)
Solubility (H2O):	Soluble	**Specific Gravity:**	Not available
Softening Point:	Not applicable		
Molecular Weight:	81.97	**Bulk Density:**	Not available
Particle Size (100# mesh)	90.0 (min.)	**Chemical Formula:**	$NaAlO_2$

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Product is stable under normal conditions of temperature and pressure.

Chemical Stability: Conditions to Avoid

Avoid moisture, high temperatures, and exposure to incompatible materials.

Incompatibility

This material is incompatible with active metals and their solutions, strong acids (violent or explosive reactions may occur), aldehydes (may react explosively), aluminum or zinc solutions, tin and its alloys (solutions may be incompatible).

Hazardous Decomposition

Sodium hydroxide, aluminum oxides.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

May cause eye irritation or burns. Sodium Aluminate may cause skin, nose, throat and respiratory tract irritation. Harmful if swallowed.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin).

B: Component Analysis - LD50/LC50

No data available.

C: Component Analysis - TDLo/LDLo

No data available.

A: General Product Information

This material is not listed as carcinogenic by any agency tracking carcinogenicity in animals or humans.

Epidemiology

No information available.

Neurotoxicity

Some data suggest that high aluminum levels in the brain lead to encephalopathy or Alzheimer's disease.

* * * Section 11 - Toxicological Information (Continued) * * *

Mutagenicity

No data available.

Teratogenicity

No information available.

Other Toxicological Information

No information available.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This material is expected to be harmful to aquatic life in low concentration.

B: Ecotoxicity

No data available.

Environmental Fate

Albic and spodic soil horizons were sampled from old growth eastern white pine/mixed northern hardwoods. Adirondacks, and an ochric soil horizon was sampled from the Appalachian plateau of NY State. Three horizon forest floor and 21 forest floor/mineral soil (field moist equivalent of 12.0 oven dry albic, spodic, or ochric mineral soil) columns were leached in triplicate with either 10 μM nitric acid (pH 5), 5 μM sulfuric acid (pH 5), 100 μM nitric acid (pH 4), 50 μM sulfuric acid (pH 4), 1000 μM nitric acid (pH 3), 500 μM sulfuric acid (pH 3), or distilled, deionized water (pH 5.7) control treatment). Nitric acid leached more aluminum than did sulfuric acid from forest floor/spodic soil columns. Increasing the nitric acid concentration from pH 3-5 increased total aluminum concentration in leachates from 0.70 to 0.85 mM, while increasing sulfuric acid had no effect. Addition of pH 3 sulfuric acid to forest floor/spodic columns raised leachate pH relative to pH 3 nitric acid and controls, and resulted in the lowest aluminum concentration of all treatments in the first 3 of 4 sequential leachings.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, this product is not considered a hazardous waste.

B: Component Waste Numbers

This material and its wastes should be tested to see if they meet the criteria for D002 (Waste Characteristic-Corrosivity)

Disposal Instructions

All wastes must be handled in accordance with U.S. local, state and federal regulations or with regulations of Canada and its Provinces. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

* * * Section 14 – Transportation Information Ground * * *

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under 49 CFR, IATA and IMDG to assure regulatory compliance.

US DOT 49 CFR 100-185 Revised July 24, 2009 Information

The letter “A” in the Hazardous Materials Table denotes that this material is subject to the requirements of this subchapter only when offered or intended for transportation by aircraft, unless the material is a hazardous substance or a hazardous waste. A shipping description entry preceded by an “A” may be used to describe a material for other modes of transportation provided all applicable requirements for the entry are met.

UN/NA #: UN 2812
Shipping Name: Sodium Aluminate, solid
Hazard Class: 8
Packing Group: III
Required Label(s): 8 (Corrosive)
Special Provision: IB8, IP3
Packaging: 172.213
RQ Quantity: N/A

Additional Shipping Information

Limited Quantity Shipments: Shipments, except for air, need not be marked with the Proper Shipping Name of the contents, but shall be marked with the UN Number (2812) of the contents, preceded by the letters "UN", placed within a diamond. The width of

the line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. The total weight of each outer packaging cannot exceed 30 kg (66 pounds.) .

Small Quantities for Highway and Rail: The maximum quantity of this material per inner receptacle is limited to 30 g (1 ounce) per receptacle. The inner receptacles must be securely packed in an inside packaging with cushioning material to prevent movement of the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg (64 pounds). The completed package must meet the drop test requirements of 173.4(6) (i). The outside of the package must be marked with the statement "**This package conforms to 49 CFR 173.4 for domestic highway or rail transport only."**

Excepted Quantities: The maximum quantity of this material per inner receptacle is limited to 30 g (1 ounce) per receptacle and the aggregate quantity of this material per completed package does not exceed 1kg (2.2 pounds). The inner receptacles must be securely packed in an inside packaging with cushioning material to prevent movement in the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg (64 pounds). The completed package must meet a drop test. The requirements are found in 173.4(6) (i). The package must not be opened or otherwise altered until it is no longer in commerce. For highway or rail transportation no shipping paper is required. The package must be legibly marked with the following marking:

NOTE: The "*" must be replaced by the primary hazard class, or when assigned, the division of each of the hazardous materials contained in the package. The "**" must be replaced by the name of the shipper or consignee if not shown elsewhere on the package. The symbol shall be not less than 100 mm (3.9 inches) x 100 mm (3.9 inches), and must be durable and clearly visible.

De minimis Exceptions: The maximum quantity of this material per inner receptacle is limited to 1g (0.04 ounce) per receptacle and the aggregate quantity of this material per completed package does not exceed 100 g (0.22 pounds). The inner receptacles must be securely packed in an inside packaging with cushioning material to prevent movement in the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg (64 pounds). The completed package must meet the drop test. The requirements are found in 173.4(6) (i). The package must not be opened or otherwise altered until it is no longer in commerce and may be transported by aircraft. If all of the above requirements are met, then this material is not regulated.

* * * Section 14 – Transportation Information Air * * *

50th Edition International Air Transport Association (IATA):

For Shipments by Air transport: This information applies to air shipments both within the U.S. and for shipments originating in the U.S., but being shipped to a different country.

UN/NA #: UN 2812
Proper Shipping Name: Sodium Aluminate, solid
Hazard Class: 8
Packaging Group: III
Passenger & Cargo Aircraft Packing Instruction: 822
Passenger & Cargo Aircraft Maximum Net Quantity: 25 kg
Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y822
Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 5 kg
Cargo Aircraft Only Packing Instruction: 823
Cargo Aircraft Only Maximum Net Quantity: 100 kg
Excepted Quantities: E1
Special Provisions: None
ERG Code: 8L

Limited Quantity Shipments: Shipments for air must be marked with the Proper Shipping Name, Sodium Aluminate, solid, and shall be marked with the UN Number (2812) preceded by the letters "UN", placed within a diamond. The width of the line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. The total weight of each outer packaging cannot exceed 30 kg.

Excepted Quantities: The maximum quantity of this material per inner receptacle is limited to 30 g per receptacle and the aggregate quantity of this material per completed package does not exceed 500g. The inner receptacles must be securely packed in an intermediate packaging with cushioning material to prevent movement in the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg. The completed package must meet a drop test. The requirements are found in 2.7.6.1. The package must not be opened or otherwise altered until it is no longer in commerce. For air transportation no shipping paper is required. The package must be legibly marked with the following marking:

NOTE: The "*" must be replaced by the primary hazard class, or when assigned, the division of each of the hazardous materials contained in the package. The "**" must be replaced by the name of the shipper or consignee if not shown elsewhere on the package. The symbol shall be not less than 100 mm x 100 mm and must be durable and clearly visible.

* * * Section 14 – Transportation Information Vessel * * *

Amendment 34-08 International Maritime Dangerous Goods (IMDG) Code
For shipments via marine vessel transport, the following classification information applies.

UN/NA #: UN 2812
Proper Shipping Name: SODIUM ALUMINATE, SOLID
Hazard Class: Class 8
Packing Group: III
Special Provisions: 960
Limited Quantities: None
Excepted Quantities: None
Packing Instructions: None
Provisions: None
IBC Instructions: None
IBC Provisions: None
EmS: None
Stowage and Segregation:
Not Subject to the provisions of this code but may be subject to provisions governing the transport of dangerous goods of other modes.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information
No additional information.

B: Component Analysis
This material is not required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4):

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Sodium Aluminate	1302-42-7	No	No	No	Yes	No

State Regulations

A: General Product Information

California Proposition 65
Sodium Aluminate is not on the California Proposition 65 chemical lists.

US Federal Regulations

B: Component Analysis - State
The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Sodium Aluminate	1302-42-7	No	No	No	No	No	No

Other Regulations

A: General Product Information
No other information available.

* * * Section 15 - Regulatory Information (Continued) * * *

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sodium Aluminate	1302-42-7	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sodium Aluminate	1302-42-7	1 percent

ANSI LABELING (Z129.1): DANGER! CORROSIVE. CAN CAUSE BURNS TO ALL CONTAMINATED TISSUE. HARMFUL IF INHALED, INGESTED, IN OR CONTACT WITH SKIN OR EYES. MAY BE FATAL IF SWALLOWED. Keep from contact with clothing. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO_2, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

* * * Section 16 - Other Information * * *

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

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Revision Log: New
02/08/05 11:15 AM SEP Section 14 IATA and IMO updated
09/05/06 3:19 pm SEP Updated DOT Section 14.
10/15/08 9:25 AM DLY Changed Chem One Physical Address, Section 1
09/18/09 MMK Updated Section 14 limited & excepted quantities and exceptions

This is the end of MSDS # C1-219