



# Material Safety Data Sheet

## 1. PRODUCT AND COMPANY IDENTIFICATION

### ACUMER(TM)9400

Revision date: 08/05/2004

**Supplier**

Rohm and Haas Company  
100 Independence Mall West  
Philadelphia, PA 19106-2399 United States of America

**For non-emergency information contact:** 215-592-3000

### Emergency telephone number

|                  |              |
|------------------|--------------|
| Spill Emergency  | 215-592-3000 |
| Health Emergency | 215-592-3000 |
| Chemtrec         | 800-424-9300 |

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Component                    | CAS-No.       | Concentration |
|------------------------------|---------------|---------------|
| Polycarboxylate, sodium salt | Not Hazardous | 42.0 - 43.0%  |
| Residual monomers            | Not Required  | <100.0PPM     |
| Water                        | 7732-18-5     | 57.0 - 58.0%  |

## 3. HAZARDS IDENTIFICATION

### Emergency Overview

### Appearance

Form liquid

|              |           |
|--------------|-----------|
| Colour       | yellow    |
|              | clear     |
| <b>Odour</b> | Mild odor |

**Hazard Summary****CAUTION!**

INHALATION OF VAPOR OR MIST CAN CAUSE HEADACHE, NAUSEA AND IRRITATION OF THE NOSE, THROAT AND LUNGS.

MAY CAUSE EYE/SKIN IRRITATION.

**Potential Health Effects****Primary Routes of Entry:**

Inhalation

Eye contact

Skin contact

**Eyes:**Direct contact with material can cause the following:

slight irritation

**Skin:**Prolonged or repeated skin contact can cause the following:

slight irritation

**Inhalation:**Inhalation of vapor or mist can cause the following:

irritation of nose, throat, and lungs

headache

nausea

**Chronic Exposure:**Prolonged or repeated overexposure can cause the following:

lung irritation

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**4. FIRST AID MEASURES**

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**Inhalation:**Move to fresh air.

**Skin contact:**Wash with water and soap as a precaution. If skin irritation persists, call a physician.

**Eye contact:**Rinse with plenty of water. If eye irritation persists, consult a specialist.

**Ingestion:**Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

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**5. FIRE-FIGHTING MEASURES**

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**Flash point** Noncombustible

**Lower explosion limit** not applicable

Upper explosion limit

not applicable

Suitable extinguishing media:

Use extinguishing media appropriate for surrounding fire.

**Specific hazards during fire fighting:**Material can splatter above 100C/212F. Dried product can burn.

**Special protective equipment for fire-fighters:**Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment.

Keep people away from and upwind of spill/leak.

Material can create slippery conditions.

Environmental precautions

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods for cleaning up

Contain spills immediately with inert materials (e.g., sand, earth).

Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. Handling and storage

Handling

Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

**Further information on storage conditions:**Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

Storage

**Storage temperature:**1 - 49 °C(34 - 120 °F)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

|            |                 |       |
|------------|-----------------|-------|
| Regulation | Type of listing | Value |
|------------|-----------------|-------|

**Eye protection:**safety glasses with side-shields Eye protection worn must be compatible with respiratory protection system employed.

**Hand protection:**The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Neoprene gloves

**Respiratory protection:**A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. For dust or mist up to 5 times the exposure limit, wear a properly fitted NIOSH approved (or equivalent) single use N95 filtering facepiece. If oil mist is present, wear a single use R95 or P95 filtering facepiece.

**Protective measures:**Facilities storing or utilizing this material should be equipped with an eyewash facility.

**Engineering measures:**Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75 m/sec.) at the point of dust or mist evolution. Refer to the current edition of "Industrial Ventilation: A Manual of Recommended Practice" published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

|                         |                                     |
|-------------------------|-------------------------------------|
| Form                    | liquid                              |
| Colour                  | yellow                              |
|                         | clear                               |
| Odour                   | Mild odor                           |
| pH                      | 6.5 - 7.5                           |
| Boiling point/range     | 100 °C (212.00 °F) Water            |
| Melting point/range     | 0 °C (32 °F) Water                  |
| Flash point             | Noncombustible                      |
| Lower explosion limit   | not applicable                      |
| Upper explosion limit   | not applicable                      |
| Vapour pressure         | 17.0 mmHg at 20 °C (68.00 °F) Water |
| Relative vapour density | <1.0 water                          |
| Water solubility        | completely soluble                  |
| Relative density        | 1.33                                |
| Viscosity, dynamic      | 200.000 - 800.000 mPa.s             |
| Evaporation rate        | <1.00 Water                         |
| Percent volatility      | 57 - 58 % water                     |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

|                     |                                                                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Hazardous reactions | None known.                                                                                                                                  |
|                     | Stable                                                                                                                                       |
|                     | However, avoid temperatures above 230C/446F, the onset of polymer decomposition. Thermal decomposition is dependent on time and temperature. |

|                                                        |                                                                                                |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Materials to avoid</b>                              | There are no known materials which are incompatible with this product.                         |
| <b>Hazardous decomposition products polymerization</b> | Thermal decomposition may yield acrylic monomers.,<br>Product will not undergo polymerization. |

#### 11. TOXICOLOGICAL INFORMATION

No data are available for this material. The information shown is based on profiles of compositionally similar materials.

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acute oral toxicity</b> | LD50rat > 5,000 mg/kg                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Skin irritation</b>     | rabbitslight irritation                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Eye irritation</b>      | rabbitslight irritation                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Subchronic toxicity</b> | A 13 week inhalation study in rats of a compositionally similar polycarboxylate material showed inflammatory effects in the lung at concentrations of 5 mg/m3 for 6 hours per day, 5 days per week. The no-observed-effect-level for this response was judged to be 1 mg/m3. Maintaining airborne concentrations within the recommended exposure limit is not expected to produce adverse effects within the lung. |

#### 12. ECOLOGICAL INFORMATION

The Environmental Toxicity data are for a compositionally similar material.

##### Ecotoxicity effects

|                                          |                                                             |
|------------------------------------------|-------------------------------------------------------------|
| <b>Toxicity to fish</b>                  | LC50Rainbow trout96 h                                       |
| <b>Toxicity to fish</b>                  | >1,000 mg/l<br>LC50Zebra fish (Danio/Brachydanio rerio)96 h |
| <b>Toxicity to aquatic invertebrates</b> | >1,000 mg/l<br>LC50Brown shrimp96 h                         |
|                                          | >10,000 mg/l                                                |

#### 13. DISPOSAL CONSIDERATIONS

**Environmental precautions:**CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

##### Disposal

**Waste Classification:**When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

#### 14. TRANSPORT INFORMATION

DOT

Not regulated for transport

IMO/IMDG

Not regulated (Not dangerous for transport)

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations

15. REGULATORY INFORMATION

Workplace Classification

This product as supplied is non-hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200). Under processing conditions it may become OSHA hazardous due to the potential for overexposure to dusts or mists.

This product as supplied is not a 'controlled product' under the Canadian Workplace Hazardous Materials Information System(WHMIS).

**SARA TITLE III:Section 311/312 Categorizations (40CFR370):**This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

**SARA TITLE III:Section 313 Information (40CFR372)**

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

**CERCLAInformation(40CFR302.4)**

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

**US. Toxic Substances Control Act (TSCA)** All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

16. OTHER INFORMATION

Hazard Rating

|      | Health | Fire | Reactivity |
|------|--------|------|------------|
| HMIS | 1      | 0    | 0          |

Legend

|       |                                                           |
|-------|-----------------------------------------------------------|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| BAC   | Butyl acetate                                             |
| OSHA  | Occupational Safety and Health Administration             |
| PEL   | Permissible Exposure Limit                                |
| STEL  | Short Term Exposure Limit (STEL):                         |
| TLV   | Threshold Limit Value                                     |
| TWA   | Time Weighted Average (TWA):                              |
|       | Bar denotes a revision from prior MSDS.                   |

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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Layout 208957



**MSDS:** 0000613  
**Print Date:** 07/06/2011  
**Revision Date:** 07/06/2011

## MATERIAL SAFETY DATA SHEET

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** AERO® 845 Promoter  
**Synonyms:** None  
**Product Description:** Surface active agent in water and ethanol  
**Intended/Recommended Use:** Mining chemical

**Supplied By:** CYTEC CANADA INC., 9061 GARNER ROAD  
NIAGARA FALLS, ONTARIO, CANADA L2E 6S5 1-905/356-9000

**Manufactured By:** CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA,  
WOODLAND PARK, NEW JERSEY 07424, USA - 973/357-3100

**EMERGENCY PHONE (24 hours/day) - For emergency involving spill, leak, fire, exposure or accident call:**

**Asia Pacific:**

Australia - +61-3-9663-2130 or 1800-033-111  
China (PRC) - +86 10 5100 3039 (Carechem24 China)  
New Guinea - +61-3-9663-2130  
New Zealand - +61-3-9663-2130 or 0800-734-607  
All Others - +65 3158 1074 (Carechem24 Singapore)

**Canada:** +1-905-356-8310 (Cytec Welland, Canada plant)

**Europe/Africa/Middle East (Carechem24 UK):**

Europe, Middle East, Africa, Israel - +44 (0) 1235 239 670  
Middle East, Africa (Arabic speaking countries) - +44 (0) 1235 239 671

**Latin America:**

Brazil - 0800 0111 767 (SOS Cotec)  
Chile - +56-2-247-3600 (CITUC QUIMICO)  
All Others - +52-376-73 74122 (Cytec Atequiza, Mexico plant)

**USA:** +1-703-527-3887 or 1-800-424-9300 (CHEMTREC #CCN6083)

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### 2. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**APPEARANCE AND ODOR:**

|             |           |
|-------------|-----------|
| Color:      | tan       |
| Appearance: | liquid    |
| Odor:       | soap-like |

**STATEMENTS OF HAZARD:**

|          |                                   |
|----------|-----------------------------------|
| CAUTION! | MAY CAUSE EYE AND SKIN IRRITATION |
|          | COMBUSTIBLE LIQUID AND VAPOR      |

**CHRONIC HAZARD WARNING:**

REPRODUCTIVE HAZARD - CONTAINS ETHANOL WHICH MAY CAUSE BIRTH DEFECTS OR OTHER ADVERSE EFFECTS ON PREGNANCY

Risk of effects depends on duration and level of exposure



## POTENTIAL HEALTH EFFECTS

### EFFECTS OF EXPOSURE:

The acute oral (rat) LD50 and dermal (rabbit) LD50 values are 20994 mg/kg and 11200, respectively. The 4-hour inhalation (rat) LC50 value is estimated to be 20 mg/l. This material showed no evidence of sensitization in the Human Repeated Insult Patch Test. Direct contact with this material may cause mild eye and skin irritation. Overexposure to vapor may cause respiratory tract irritation and central nervous system depression. Refer to Section 11 for toxicology information on the regulated components of this product.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### WHMIS REGULATED COMPONENTS

| Component / CAS No. | %   | Carcinogen                                        |
|---------------------|-----|---------------------------------------------------|
| Ethanol<br>64-17-5  | < 5 | IARC 1<br>NTP(as Alcoholic beverages)<br>ACGIH A3 |

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## 4. FIRST AID MEASURES

### Eye Contact:

Rinse immediately with plenty of water for at least 15 minutes.

### Skin Contact:

Wash immediately with plenty of water and soap.

### Ingestion:

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

### Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

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## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media:

Use water spray, alcohol foam, carbon dioxide or dry chemical to extinguish fires. Water stream may be ineffective.

### Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus.

### Special Hazards:

Keep containers cool by spraying with water if exposed to fire.

### Mechanical/Static Sensitivity Statements:

Areas containing this material should have fire-safe practices and electrical equipment in accordance with applicable governmental regulations for products with the flashpoint as shown (Physical and Chemical Properties Section).

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions:

Where exposure level is known, wear approved respirator suitable for level of exposure. Where exposure level is not known, wear approved, positive pressure, self-contained respirator. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

**Methods For Cleaning Up:**

Remove sources of ignition. Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

**Environmental Precautions:**

Use appropriate containment to avoid environmental contamination.

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## 7. HANDLING AND STORAGE

**HANDLING**

**Precautionary Measures:** Keep away from heat and flame. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

**Special Handling Statements:** None

**STORAGE**

Areas containing this material should have fire safe practices and electrical equipment in accordance with applicable regulations and/or guidelines. Standards are primarily based on the material's flashpoint, but may also take into account properties such as miscibility with water or toxicity. All local and national regulations should be followed.

In the Americas, National Fire Protection Association (NFPA) 30: Flammable and Combustible Liquids Code, is a widely used standard. NFPA 30 establishes storage conditions for the following classes of materials: Class I Flammable Liquids, Flashpoint <37.8 °C. Class II Combustible Liquids, 37.8 °C < Flashpoint <60 °C. Class IIIa Combustible Liquids, 60 °C < Flashpoint < 93 °C. Class IIIb Combustible Liquids, Flashpoint > 93 °C. The product should be stored above 10 °C (50 °F) in order to prevent separation (gel layer on bottom of drum).

**Storage Temperature:** Store at 10 °C 50 °F

**Reason:** Quality.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures:**

Engineering controls are not usually necessary if good hygiene practices are followed.

**Respiratory Protection:**

Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

**Eye Protection:**

Wear eye/face protection such as chemical splash proof goggles or face shield.

**Skin Protection:**

Avoid skin contact. Wear impermeable gloves and suitable protective clothing.

**Additional Advice:**

Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. It is recommended that a shower be taken after completion of workshift especially if significant contact has occurred. Work clothing should then be laundered prior to reuse. Street clothing should be stored separately from work clothing and protective equipment. Work clothing and shoes should not be taken home.

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### Exposure Limit(s)

**64-17-5****Ethanol**

|              |                 |
|--------------|-----------------|
| ACGIH (TLV): | 1000 ppm (STEL) |
| AIHA (WEEL): | Not established |
| Other Value: | Not established |

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                 |                                                  |
|-------------------------------------------------|--------------------------------------------------|
| <b>Color:</b>                                   | tan                                              |
| <b>Appearance:</b>                              | liquid                                           |
| <b>Odor:</b>                                    | soap-like                                        |
| <b>Boiling Point:</b>                           | 78 °C      173 °F (value for ethanol/water)      |
| <b>Melting Point:</b>                           | Separates below 10 C                             |
| <b>Vapor Pressure:</b>                          | Not available                                    |
| <b>Specific Gravity/Density:</b>                | 1.12                                             |
| <b>Vapor Density:</b>                           | Not available                                    |
| <b>Percent Volatile (% by wt.):</b>             | 65                                               |
| <b>pH:</b>                                      | 7 - 8                                            |
| <b>Saturation In Air (% By Vol.):</b>           | Not available                                    |
| <b>Evaporation Rate:</b>                        | Not available                                    |
| <b>Solubility In Water:</b>                     | Complete                                         |
| <b>Volatile Organic Content:</b>                | Not available                                    |
| <b>Flash Point:</b>                             | 54 °C      129 °F      Pensky-Martens Closed Cup |
| <b>Flammable Limits (% By Vol):</b>             | Not available                                    |
| <b>Autoignition Temperature:</b>                | Not available                                    |
| <b>Decomposition Temperature:</b>               | Not available                                    |
| <b>Partition coefficient (n-octanol/water):</b> | Not available                                    |
| <b>Odor Threshold:</b>                          | Not available                                    |

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## 10. STABILITY AND REACTIVITY

|                                          |                                                                                                                      |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Stability:</b>                        | Stable                                                                                                               |
| <b>Conditions To Avoid:</b>              | None known                                                                                                           |
| <b>Polymerization:</b>                   | Will not occur                                                                                                       |
| <b>Conditions To Avoid:</b>              | None known                                                                                                           |
| <b>Materials To Avoid:</b>               | Strong oxidizing agents.                                                                                             |
| <b>Hazardous Decomposition Products:</b> | Carbon monoxide (CO)<br>Carbon dioxide<br>oxides of nitrogen<br>oxides of sulfur (includes sulfur di and tri oxides) |

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## 11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 2. HAZARDS IDENTIFICATION. Toxicological information on the regulated components of this product is as follows:

Ethanol has acute oral (rat) and dermal (rabbit) LD50 values of 7060 mg/kg and 20,000 mg/kg, respectively. The 10-hour inhalation LC50 for ethanol in rats is 20,000 ppm (59.4 mg/L/4hr). The literature reports a lower 4-hour acute inhalation (rat) LC50 value of 31,000 mg/m<sup>3</sup> (31 mg/l). Inhalation overexposure may cause respiratory tract irritation. Ethanol is a potent teratogen associated with abnormal fetal formation, growth retardation, neurological damage, and behavioral alterations in children with fetal alcohol syndrome. Chronic ingestion of ethanol may cause damage to the liver, heart and gastrointestinal tract. In a dominant lethal assay, male mice treated with ethanol over a three day period showed significant decrease in average litter size along with increased incidence of dead implants. Ethanol is reported to have shown positive results in in vivo and in vitro screening tests for mutagenicity. Direct contact with ethanol may cause moderate eye irritation and mild skin irritation. Ethanol may cause central nervous system depression that causes stupor, coma and eventually death if ingested in excessive quantities. The literature shows that due to synergistic and potentiating effects, the toxicity of ethanol may be enhanced by exposure to halogenated hydrocarbons and Manganese.

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## 12. ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The ecological assessment for this material is based on an evaluation of its components.

## 13. DISPOSAL CONSIDERATIONS

The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternative to disposal as a waste. The Company recommends that organic materials classified as hazardous waste according to the relevant local or national regulations be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

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## 14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

### US DOT

Dangerous Goods? X

Proper Shipping Name: Flammable liquid, n.o.s

Hazard Class: 3

Packing Group: III

UN/ID Number: UN1993

Transport Label Required: Flammable Liquid  
Marine Pollutant

Marine Pollutant

Technical Name (N.O.S.): Contains ethanol and sulfosuccinamate

Comments: Flammable liquids with a flash point at or above 38° C (100° F) and not meeting the definition of any other hazard class may be reclassified as a Combustible liquid except for transport by vessel or aircraft. If reclassified, these Combustible liquids are not regulated in non-bulk packagings.  
Marine Pollutants - DOT requirements specific to Marine Pollutants do not apply to non-bulk packagings transported by motor vehicles, rail cars or aircraft.

## TRANSPORT CANADA

Dangerous Goods? X

Proper Shipping Name: Flammable liquid, n.o.s

Hazard Class: 3

Packing Group: III

UN Number: UN1993

Transport Label Required: Flammable Liquid  
Marine Pollutant

Marine Pollutant

Technical Name (N.O.S.): Contains ethanol and sulfosuccinamate

## ICAO / IATA

Dangerous Goods? X

Proper Shipping Name: Flammable liquid, n.o.s.

Hazard Class: 3

Packing Group: III

UN Number: UN1993

Transport Label Required: Flammable Liquid  
Technical Name (N.O.S.): Ethanol

## IMO

Dangerous Goods? X

Proper Shipping Name: Flammable liquid, n.o.s.

Hazard Class: 3

UN Number: UN1993

Packing Group: III

Transport Label Required: Flammable Liquid  
Marine Pollutant

Marine Pollutant

Technical Name (N.O.S.): Contains ethanol and sulfosuccinamate

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## 15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Controlled products Regulations and this Material Safety Data Sheet contains all the information required by the Controlled Products Regulations.

### WHMIS CLASSIFICATION:

Class B3 Combustible Liquid

Class D2A Very Toxic

### Inventory Information

**United States (USA):** All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

**Canada:** All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

**Australia:** All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

**China:** All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

**Japan:** All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

**Korea:** All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

**Philippines:** All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

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## 16. OTHER INFORMATION

### NFPA Hazard Rating (National Fire Protection Association)

Health: 1 - Materials that, under emergency conditions, can cause significant irritation.

Fire: 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

Instability: 0 - Materials that in themselves are normally stable, even under fire exposure conditions.

### Reasons For Issue:

Revised Section 14

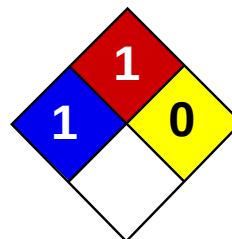
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Prepared By: Randy Deskin, Ph.D., DABT +1-973-357-3100  
07/06/2011

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This information is given without any warranty or representation. We do not assume any legal responsibility for same, nor do we give permission, inducement, or recommendation to practice any patented invention without a license. It is offered solely for your consideration, investigation, and verification. Before using any product, read its label.

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|                     |   |
|---------------------|---|
| Health              | 1 |
| Fire                | 1 |
| Reactivity          | 0 |
| Personal Protection | A |

## Material Safety Data Sheet

### Alginate acid MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Alginate acid

**Catalog Codes:** SLA4597

**CAS#:** 9005-32-7

**RTECS:** AZ5775000

**TSCA:** TSCA 8(b) inventory: Alginate acid

**CI#:** Not available.

**Synonym:**

**Chemical Name:** Not available.

**Chemical Formula:** POLYMER

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

| Name          | CAS #     | % by Weight |
|---------------|-----------|-------------|
| Alginate acid | 9005-32-7 | 100         |

**Toxicological Data on Ingredients:** Alginate acid LD50: Not available. LC50: Not available.

#### Section 3: Hazards Identification

**Potential Acute Health Effects:** Slightly hazardous in case of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## Section 7: Handling and Storage

**Precautions:**

Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.



## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** Not available.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not available.

**Color:** Not available.

**pH (1% soln/water):** Not available.

**Boiling Point:** Not available.

**Melting Point:** Decomposes.

**Critical Temperature:** Not available.

**Specific Gravity:** Not available.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Not available.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Not available.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:** Causes damage to the following organs: lungs, mucous membranes.

**Other Toxic Effects on Humans:** Slightly hazardous in case of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

## Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## Section 15: Other Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Alginic acid

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):**

This product is not classified according to the EU regulations.

**HMIS (U.S.A.):****Health Hazard:** 1**Fire Hazard:** 1**Reactivity:** 0**Personal Protection:** a**National Fire Protection Association (U.S.A.):****Health:** 1**Flammability:** 1**Reactivity:** 0**Specific hazard:****Protective Equipment:**

Not applicable. Lab coat. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

**Section 16: Other Information****References:** Not available.**Other Special Considerations:** Not available.**Created:** 10/11/2005 11:14 AM**Last Updated:** 11/06/2008 12:00 PM

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# Material Safety Data Sheet

## Sodium metaphosphate

ACC# 21260

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Sodium metaphosphate

**Catalog Numbers:** 61217-5000, S333-500

**Synonyms:** Metaphosphoric acid hexasodium salt; Sodium hexametaphosphate.

**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

| CAS#       | Chemical Name        | Percent | EINECS/ELINCS |
|------------|----------------------|---------|---------------|
| 10124-56-8 | Sodium metaphosphate | app.100 | 233-343-1     |

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: colorless to white solid.

**Caution!** May cause eye, skin, and respiratory tract irritation. The toxicological properties of this material have not been fully investigated.

**Target Organs:** None known.

#### Potential Health Effects

**Eye:** May cause eye irritation.

**Skin:** May cause skin irritation. May be harmful if absorbed through the skin.

**Ingestion:** May cause irritation of the digestive tract. May be harmful if swallowed.

**Inhalation:** May cause respiratory tract irritation. May be harmful if inhaled.

**Chronic:** No information found.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation develops, get medical aid.

**Skin:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**Ingestion:** Do not induce vomiting. Get medical aid if irritation or symptoms occur.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 1; Flammability: 1; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

## Section 7 - Handling and Storage

**Handling:** Do not let this chemical enter the environment. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

**Storage:** Store in a cool, dry place. Store in a tightly closed container.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

### Exposure Limits

| Chemical Name        | ACGIH       | NIOSH       | OSHA - Final PELs |
|----------------------|-------------|-------------|-------------------|
| Sodium metaphosphate | none listed | none listed | none listed       |

**OSHA Vacated PELs:** Sodium metaphosphate: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Solid

**Appearance:** colorless to white

**Odor:** odorless

**pH:** 6.0 - 7.7 solution.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.  
**Evaporation Rate:** Not applicable.  
**Viscosity:** Not applicable.  
**Boiling Point:** Not applicable.  
**Freezing/Melting Point:** 640 deg C  
**Decomposition Temperature:** Not available.  
**Solubility:** Soluble.  
**Specific Gravity/Density:** 2.181  
**Molecular Formula:** (NaPO<sub>3</sub>)<sub>6</sub>  
**Molecular Weight:** 611.77

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.  
**Conditions to Avoid:** Incompatible materials, dust generation, excess heat.  
**Incompatibilities with Other Materials:** Oxidizing agents.  
**Hazardous Decomposition Products:** Oxides of phosphorus, toxic fumes of sodium oxide.  
**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 10124-56-8: OY3675000

**LD50/LC50:**

CAS# 10124-56-8:

Oral, mouse: LD50 = 4320 mg/kg;

Oral, rat: LD50 = 6200 mg/kg;

.

**Carcinogenicity:**

CAS# 10124-56-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** No information found

**Neurotoxicity:** No information found

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** No data available. No information available.

**Environmental:** No information available.

**Physical:** No information available.

**Other:** Do not empty into drains.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

|                | US DOT                                | Canada TDG     |
|----------------|---------------------------------------|----------------|
| Shipping Name: | Not regulated as a hazardous material | Not regulated. |
| Hazard Class:  |                                       |                |
| UN Number:     |                                       |                |
| Packing Group: |                                       |                |

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 10124-56-8 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 10124-56-8: 5000 lb final RQ (listed under Sodium phosphate, tribasic); 2270 kg final RQ (li

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 10124-56-8: immediate.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.  
This material does not contain any Class 1 Ozone depletors.  
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 10124-56-8 is listed as a Hazardous Substance under the CWA.  
None of the chemicals in this product are listed as Priority Pollutants under the CWA.  
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 10124-56-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases:

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

**WGK (Water Danger/Protection)**

CAS# 10124-56-8: 1

**Canada - DSL/NDSL**

CAS# 10124-56-8 is listed on Canada's DSL List.

**Canada - WHMIS**

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

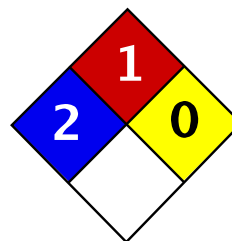
|                                            |
|--------------------------------------------|
| <b>Section 16 - Additional Information</b> |
|--------------------------------------------|

**MSDS Creation Date:** 12/12/1997

**Revision #8 Date:** 7/22/2008

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|                     |   |
|---------------------|---|
| Health              | 2 |
| Fire                | 1 |
| Reactivity          | 0 |
| Personal Protection | E |

## Material Safety Data Sheet

### Citric acid MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Citric acid

**Catalog Codes:** SLC5449, SLC2665, SLC4453, SLC1660, SLC3451

**CAS#:** 77-92-9

**RTECS:** GE7350000

**TSCA:** TSCA 8(b) inventory: Citric acid

**CI#:** Not available.

**Synonym:** 2-Hydroxy-1,2,3-propanetricarboxylic acid

**Chemical Name:** Citric Acid

**Chemical Formula:** C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.  
Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**  
1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

| Name        | CAS #   | % by Weight |
|-------------|---------|-------------|
| Citric acid | 77-92-9 | 100         |

**Toxicological Data on Ingredients:** Citric acid: ORAL (LD50): Acute: 5040 mg/kg [Mouse]. 3000 mg/kg [Rat].

#### Section 3: Hazards Identification

##### Potential Acute Health Effects:

Hazardous in case of eye contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

##### Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer).

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to teeth.

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the

eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 1010°C (1850°F)

**Flash Points:** Not available.

**Flammable Limits:** LOWER: 0.28 Kg/M3 (Dust) UPPER: 2.29 Kg/M3 (Dust)

**Products of Combustion:** These products are carbon oxides (CO, CO2).

**Fire Hazards in Presence of Various Substances:**

Slightly flammable to flammable in presence of heat.

Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

Slightly explosive in presence of open flames and sparks.

Non-explosive in presence of shocks.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** As with most organic solids, fire is possible at elevated temperatures

**Special Remarks on Explosion Hazards:**

Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard.

## Section 6: Accidental Release Measures

### Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

### Large Spill:

Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## Section 7: Handling and Storage

### Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, alkalis.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Safety glasses. Lab coat. Gloves (impervious). Dust respirator. Be sure to use an approved/certified respirator or equivalent. The dust respirator should be used for conditions where exposure has exceeded recommended exposure limits, dust is apparent, and engineering controls (adequate ventilation) are not feasible.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

No exposure guidelines have been established.

ACGIH, NIOSH and OSHA have not developed exposure limits for this product.

The exposure limits given below are for particulates not otherwise classified:

ACGIH: 10 mg/m<sup>3</sup> TWA (Total Inhalable fraction); 3 mg/m<sup>3</sup> TWA (Respirable fraction)

OSHA: 15 mg/m<sup>3</sup> TWA (Total dust); 5 mg/m<sup>3</sup> TWA (Respirable Fraction)

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Crystalline powder)

**Odor:** Odorless.

**Taste:** Acid. (Strong.)

**Molecular Weight:** 192.13 g/mole

**Color:** Not available.

**pH (1% soln/water):** Not available.

**Boiling Point:** Decomposes.

**Melting Point:** 153°C (307.4°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.665 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** The product is more soluble in water;  $\log(\text{oil/water}) = -1.7$

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, diethyl ether.

**Solubility:**

Soluble in cold water, hot water, diethyl ether.

Insoluble in benzene.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excess heat, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, reducing agents, metals, alkalis.

**Corrosivity:**

Corrosive in presence of aluminum, of zinc, of copper.

Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Incompatible with oxidizing agents, potassium tartrate, alkali, alkaline earth carbonates and bicarbonates, acetates, and sulfides, metal nitrates

**Special Remarks on Corrosivity:** Will corrode copper, zinc, aluminum and their alloys.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 3000 mg/kg [Rat].

**Chronic Effects on Humans:** May cause damage to the following organs: teeth.

**Other Toxic Effects on Humans:**

Hazardous in case of inhalation (lung irritant).  
Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion.

**Special Remarks on Toxicity to Animals:** LDL[Rabbit] - Route: oral; Dose: 7000mg/kg

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects:

Skin: Causes mild to moderate skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Eyes: Causes moderate to severe eye irritation and possible injury.

Ingestion: May cause gastrointestinal (digestive) tract irritation with nausea, vomiting, diarrhea. Excessive intake may cause erosion of teeth and hypocalcemia (calcium deficiency in blood). May affect behavior/central nervous system (tremor, convulsions, muscle contraction or spasticity).

Inhalation: Causes moderate respiratory tract and mucous membrane irritation.

Chronic Potential Health Effects:

Frequent intake of citrated beverages may cause erosion of dental enamel and irritation of mucous membranes.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## Section 15: Other Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Citric acid

**Other Regulations:** EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** CLASS E: Corrosive solid.

**DSCL (EEC):**

R36/37/38- Irritating to eyes, respiratory system and skin.  
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S37/39- Wear suitable gloves and eye/face protection.

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** e

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves (impervious).

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Safety glasses.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/09/2005 04:56 PM

**Last Updated:** 11/06/2008 12:00 PM

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## DISPONIL SLS 101 SPECIAL

### 1. Chemical product and company identification

**Product name:**  
DISPONIL SLS 101 SPECIAL  
**Supplier**  
Cognis GmbH  
Henkelstraße 67  
Düsseldorf 40589  
Phone: +49 (211) 7940-0

*Cognis Canada*  
*905-542-7550*

**Emergency Information Chemtec:**  
+49 211 797 3350

### 2. Composition / information on ingredients

**General chemical description:**  
Aqueous Solution of Fatty Alcohol Sulfate

**Declaration of ingredients:**

| COMPONENT:                          | CAS-No.    | CONCENTRATION (Wt %): |
|-------------------------------------|------------|-----------------------|
| Alcohol sulfate C12-16, sodium salt | 73296-89-6 | 20- 30                |

### 3. Hazards identification

#### EMERGENCY OVERVIEW

**Caution:** Causes skin and eye irritation.

**State:**

liquid  
pasty

**Odor:**

odorless

**Color(s):**

colourless

## Material Safety Data Sheet

Page 2 of 7

SDS no.: 63321

DISPONIL SLS 101 SPECIAL

Revision: 08/27/2007

printing date: 08/29/2008

### Routes of entry:

Skin contact, Inhalation, Ingestion

### Potential Health Acute Effects:

#### Inhalation:

No hazard in normal industrial use.

Higher temperatures may generate vapor levels sufficient to cause irritation of the respiratory tract.

#### Skin contact:

Causes skin irritation.

#### Eye contact:

Causes eye irritation.

#### Ingestion:

May be harmful if swallowed in large quantities.

### Potential Chronic Health Effects:

None known

### Carcinogen Status

| Hazardous components | NTP Carcinogen | IARC Carcinogen | OSHA Carcinogen | ACGIH Carcinogen |
|----------------------|----------------|-----------------|-----------------|------------------|
|----------------------|----------------|-----------------|-----------------|------------------|

## 4. First aid measures

### General Advices:

In case of adverse health effects seek medical advice.

### After inhalation:

not relevant.

### After skin contact:

Rinse with running water.

### After eye contact:

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

### After ingestion:

Rinse the mouth. Drink 1-2 glasses of water.

## 5. Fire fighting measures



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**Suitable extinguishing media:**  
foam, extinguishing powder, carbon dioxide  
water spray jet

**Improper extinguishing media:**  
High pressure waterjet

**Unusual fire or explosion hazards:**  
None known

**Hazardous combustion products:**  
carbon monoxide, Carbon dioxide,  
Sulphur oxides

**Additional fire fighting advice:**  
No particular measures required.

---

**6. Accidental release measures**

**Personal precautions:**  
Avoid contact with skin and eyes.

**Environmental precautions:**  
Do not empty into drains / surface water / ground water.

**Process for cleaning and take-up:**  
Remove with liquid-absorbing material (sand, peat, sawdust).

---

**7. Handling and storage**

**Handling:**  
**Handling advice:**  
No particular measures required.

**Storage:**  
**Storage conditions to keep:**  
Store in a cool, frost-free place.  
Keep container tightly sealed.

---

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### 8. Exposure controls / personal protection

**Indication for system design:**

No particular measures required.

**Personal protection measures:**

**Respiratory protection:**

Not applicable with adequate ventilation.  
NIOSH/MSHA approved respirator if necessary.  
Follow manufacturer's recommendations.

**Hand protection:**

Protective gloves made of rubber.

**Eye protection:**

Goggles which can be tightly sealed.

### 9. Physical and chemical properties

**General description:**

|           |            |
|-----------|------------|
| State:    | liquid     |
| Odor:     | pasty      |
| Color(s): | odorless   |
|           | colourless |

**Designation**

pH-value  
(20 °C (68°F); Conc.: 100 g/l; Solvent: Water)20 °C  
(68°F)

**Value**  
7.5 - 9.5

**Method**  
DGF H-III 1 (92) pH value

Cloud point

Density  
(20 °C (68°F))

Solubility in Water  
(20 °C (68°F); )

< 15.0 °C (< 59°F)  
1 g/cm<sup>3</sup>

unlimited soluble

DIN ISO 3016-94 Pour point  
DGF C-IV 2 (52) Density

no information

### 10. Stability and reactivity

**Stability:**

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**Decomposition advices:**

No decomposition if used according to specifications.

**Reactivity:**

**Materials to avoid:**

None if used for intended purpose.

**Hazardous polymerization:**

Will not occur

---

**11. Toxicological information**

**Acute oral toxicity:**

LD50 > 2000 mg/kg body weight (Experiment)

**Skin irritation:**

irritating

Method: OECD 404

**Eye irritation:**

irritating

Method: OECD 405

**In vitro mutagenicity:**

not mutagenic

OECD 471

---

**12. Ecological information**

**General ecological information:**

The ecological evaluation of the product is based on data from the raw material and/or comparable substances.

**Acute fish toxicity:**

LC50 > 10 - <= 100 mg product/l.

Method: ISO 7346/2 (semistatic)

**Acute bacterial toxicity:**

EC0 > 100 mg product/l.

Method: Acute bacterial toxicity according to test method OECD 209.

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### Ultimate biodegradation:

Readily and rapidly degradable. All organic substances contained in the product achieve > 60% BOD/COD or CO<sub>2</sub> liberation, or > 70% DOC reduction in tests for ease of degradability. Threshold values for 'readily degradable' (e.g. to OECD method 301) are reached.

## 13. Disposal considerations

### Waste disposal of product:

Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable federal, state and local regulations.

Avoid landfilling liquids.

Reclaim where possible.

## 14. Transport information

### General information:

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR, CFR and TDG.

The transport information provided represents the regulatory transport classification of the product without consideration to packaging, quantity, or modal restrictions and exceptions. It is the user's responsibility to determine the appropriate packaging and modal requirements and/or limitations for the product quantity being shipped.

## 15. Regulatory information

### TSCA Inventory Status:

This product and/or all of its components are either included on or exempt from the TSCA Inventory of Chemical Substances.

### SARA 311/312 Hazard Categories:

Immediate Health

### TSCA 12(b) Components:

none

### SARA 313 Toxic Chemicals:

none

### SARA 302 Extremely Hazardous Substances:

none

### CERCLA Hazardous Chemicals:

none

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California Proposition 65:

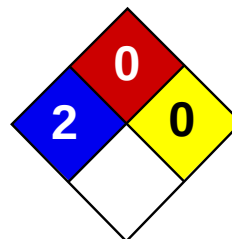
No California Proposition 65 listed chemicals are known to be present.

**16. Other information**

| NFPA Rating (US) | Value |
|------------------|-------|
| Health           | 2     |
| Fire             | 0     |
| Reactivity       | 0     |
| Special Hazard   |       |

| HMIS Rating (US) | Value |
|------------------|-------|
| Health           | 2     |
| Flammability     | 0     |
| Reactivity       | 0     |

All information, recommendations, and suggestions appearing herein concerning our product are based upon tests and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity, and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, express or implied, is being made as to the effects of such use, the results obtained, or the safety and toxicity of the product nor is their any assumed liability arising out of use, by others, of the product referred to herein. The information herein is not to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.



|                     |   |
|---------------------|---|
| Health              | 3 |
| Fire                | 0 |
| Reactivity          | 0 |
| Personal Protection |   |

## Material Safety Data Sheet

### Ferric Chloride TS MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Ferric Chloride TS

**Catalog Codes:** SLF1045

**CAS#:** Mixture.

**RTECS:** Not applicable.

**TSCA:** TSCA 8(b) inventory: Water; Ferric chloride hexahydrate

**CI#:** Not available.

**Synonym:** Ferric Chloride Test Solution

**Chemical Name:** Not applicable.

**Chemical Formula:** Not applicable.

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

| Name                        | CAS #      | % by Weight |
|-----------------------------|------------|-------------|
| Water                       | 7732-18-5  | 91          |
| Ferric chloride hexahydrate | 10025-77-1 | 9           |

**Toxicological Data on Ingredients:** Ferric chloride hexahydrate LD50: Not available. LC50: Not available.

#### Section 3: Hazards Identification

##### Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

##### Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Ferric chloride hexahydrate]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance

may be toxic to kidneys, liver, spleen, cardiovascular system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

#### Section 6: Accidental Release Measures

**Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:**

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C (75.2°F).

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

**Personal Protection:**

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Ferric chloride hexahydrate TWA: 1 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] TWA: 1 (mg/m<sup>3</sup>) from NIOSH Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Not available.

**pH (1% soln/water):** Neutral.

**Boiling Point:** The lowest known value is 100°C (212°F) (Water).

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Weighted average: 1.04 (Water = 1)

**Vapor Pressure:** The highest known value is 2.3 kPa (@ 20°C) (Water).

**Vapor Density:** The highest known value is 0.62 (Air = 1) (Water).

**Volatility:** Not available.



**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water.

**Solubility:** Easily soluble in cold water, hot water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Hygroscopic (Ferric chloride hexahydrate)

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Ferric chloride hexahydrate]. Contains material which may cause damage to the following organs: kidneys, liver, spleen, cardiovascular system, , central nervous system (CNS).

**Other Toxic Effects on Humans:**

Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer, lung corrosive).

**Special Remarks on Toxicity to Animals:** LDL [Rat] - Route: Oral; Dose: 900 mg/kg (Ferric chloride hexahydrate)

**Special Remarks on Chronic Effects on Humans:** May affect genetic material (mutagen) (Ferric chloride hexahydrate)

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Causes irritation and burns of the skin. Eyes: Causes eye irritation and burns. Higher exposures may lead to corneal or conjunctival ulceration. Ingestion: Harmful if swallowed. Causes irritation of the gastrointestinal (digestive) tract with nausea, vomiting, diarrhea and hemorrhage and possible burns. May cause severe and permanent damage to the digestive tract. Delayed effects may include cardiovascular disturbances, liver/kidney damage, cerebral coma and possible death. Inhalation: Causes irritation of the respiratory tract with possible burns. Chronic Potential Health Effects: May affect genetic material Ingestion: May affect liver, spleen Kidneys, ureter, bladder), central nervous system, and cardiovascular system.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

**Section 13: Disposal Considerations****Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Section 14: Transport Information**

**DOT Classification:** Class 8: Corrosive material

**Identification:** : Ferric Chloride Solution (Ferric chloride hexahydrate) UNNA: 2582 PG: III

**Special Provisions for Transport:** Not available.

**Section 15: Other Regulatory Information****Federal and State Regulations:**

Pennsylvania RTK: Ferric chloride hexahydrate Minnesota: Ferric chloride hexahydrate TSCA 8(b) inventory: Water; Ferric chloride hexahydrate

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:****WHMIS (Canada):**

CLASS D-2B: Material causing other toxic effects (TOXIC). CLASS E: Corrosive liquid.

**DSCL (EEC):**

R25- Toxic if swallowed. R36/38- Irritating to eyes and skin. S1/2- Keep locked up and out of the reach of children. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label.

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:**

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 10:12 AM

**Last Updated:** 11/06/2008 12:00 PM

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Page 1

Substance key: SXR025638  
Version : 2 - / EURevision Date: 27.10.2008  
Date of printing : 13.11.2008**1. Identification of the substance/preparation and of the company/undertaking****Trade name****FLOTINOR SM 15****Use of the substance/preparation.**

Industry sector : Mining

Type of use : Collecting agent for flotation

**Identification of the company**

Clariant Distributie (Nederland) BV

Diemerhof 36

1112 XN Diemen

Telephone no. : +31 20 3989 898

**Information about the substance/preparation**

Div. Functional Chemicals/PRODUCT SAFETY

++49(0)69-305-2092/15315/32251

e-mail: FUN.EHS@clariant.com

**Emergency telephone number : +32 14 584545 BIG/GEEL (24 h)****2. Hazards identification**

Irritating to skin.

Risk of serious damage to eyes.

**3. Composition/information on ingredients****Chemical characterization**

Mixture of acidic phosphoric acid mono- and diesters &gt;99%

**CAS number :** 73038-25-2**4. First aid measures****General information**

Remove soiled or soaked clothing immediately

**After inhalation**

When inhaled remove to fresh air and seek medical aid.

**After contact with skin**

In case of contact with skin wash off immediately with soap and water

**After contact with eyes**

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice

**After ingestion**

Summon a doctor immediately.

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## **5. Fire-fighting measures**

### **Suitable extinguishing media**

water spray jet  
foam  
carbon dioxide  
dry powder

### **Special hazards from the substance itself, its combustion products or from its vapours**

In case of fires, hazardous combustion gases are formed: Carbon monoxide (CO)  
Phosphorus oxides (eg Phosphorus pentoxide)

### **Special protective equipment for firefighting**

Use self-contained breathing apparatus

## **6. Accidental release measures**

### **Personal precautions**

Use personal protective clothing.

### **Environmental precautions**

Do not allow to enter drains or waterways

### **Methods for cleaning up/taking up**

Take up with absorbent material (eg sand, kieselguhr, universal binder)

## **7. Handling and storage**

### **Advice on safe handling**

Open and handle container with care.

## **8. Exposure controls / personal protection**

### **Occupational exposure controls**

#### **General protective measures**

Avoid contact with skin  
Avoid contact with eyes

#### **Hygiene measures**

Observe the usual precautions when handling chemicals.

#### **Hand protection :**

For long-term exposure:

Butyl rubber gloves

Minimum breakthrough time / gloves : 480 min

Minimum thickness / gloves 0,7 mm

For short-term exposure (splash protection):

Nitrile rubber gloves.

Minimum breakthrough time / gloves : 30 min

Minimum thickness / gloves 0,4 mm

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These types of protective gloves are offered by various manufacturers. Please note the manufacturers' detailed statements, especially about the minimum thickness and the minimum breakthrough time. Consider also the particular working conditions under which the gloves are being used.

**Eye protection :** safety glasses

**Body protection :** protective clothing

## 9. Physical and chemical properties

|                                            |                                                              |
|--------------------------------------------|--------------------------------------------------------------|
| <b>Form :</b>                              | Liquid, viscous                                              |
| <b>Colour :</b>                            | yellow to brownish                                           |
| <b>Odour :</b>                             | odourless                                                    |
| <b>Pourpoint :</b>                         | < -18 ºC<br>Method : DIN/ISO 3016                            |
| <b>Boiling range :</b>                     | 90 - 300 ºC<br>Method : DIN 53171                            |
| <b>Flash point :</b>                       | > 150 ºC<br>Method : DIN 51758 (closed cup)                  |
| <b>Ignition temperature :</b>              | Not applicable                                               |
| <b>Oxidizing properties :</b>              | Not applicable                                               |
| <b>Self-ignition temperature :</b>         | Not applicable                                               |
| <b>Flammability</b>                        |                                                              |
| <b>Lower explosion limit :</b>             | Not applicable                                               |
| <b>Upper explosion limit :</b>             | Not applicable                                               |
| <b>Combustion number :</b>                 | Not applicable                                               |
| <b>Evaporation rate :</b>                  | Not applicable                                               |
| <b>Vapour pressure :</b>                   | approx. 4 hPa (50 ºC)<br>Method : DIN 51754                  |
| <b>Density :</b>                           | approx. 1,02 g/cm <sup>3</sup> (20 ºC)<br>Method : DIN 51757 |
| <b>Bulk density :</b>                      | Not applicable                                               |
| <b>Vapour density in relation to air :</b> | Not applicable                                               |
| <b>Solubility in water :</b>               | soluble                                                      |
| <b>Soluble in ... :</b>                    | fat<br>not tested.                                           |
| <b>pH value :</b>                          | approx. 2,3 (20 ºC, 10 g/l)<br>Method : DIN 53996            |

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|                                                    |                                                 |
|----------------------------------------------------|-------------------------------------------------|
| Octanol/water partition<br>coefficient (log Pow) : | 7,81<br>Method : Calculated by Syracuse.        |
| Viscosity (dynamic) :                              | approx. 840 mPa.s (23 ºC)<br>Method : DIN 53015 |
| Viscosity (kinematic) :                            | not tested.                                     |

**10. Stability and reactivity**

|                         |                                                   |
|-------------------------|---------------------------------------------------|
| Thermal decomposition : | > 250 ºC (Heating rate : 3 K/min)<br>Method : DSC |
|-------------------------|---------------------------------------------------|

**Hazardous reactions**

No hazardous reactions when stored and handled according to prescribed instructions.

**11. Toxicological information**

|                             |                                                                  |
|-----------------------------|------------------------------------------------------------------|
| Acute oral toxicity :       | LD50 > 2.000 mg/kg (rat)<br>Method : OECD 401                    |
| Acute inhalation toxicity : | not tested.                                                      |
| Acute dermal toxicity :     | not tested.                                                      |
| Irritant effect on skin :   | irritant (rabbit)<br>Method : OECD 404                           |
| Irritant effect on eyes :   | risk of serious damage to eyes (rabbit eye)<br>Method : OECD 405 |
| Sensitization :             | not tested.                                                      |
| Mutagenicity :              | Not mutagenic in Ames Test.<br>Source : Analogy                  |

**12. Ecological information**

|                                     |                                                      |
|-------------------------------------|------------------------------------------------------|
| Biodegradability :                  | 76 %<br>Method : OECD 302B / ISO 9888 / EEC 88/302C  |
| Fish toxicity :                     | LC50 10 - 100 mg/l (96 h, golden orfe)               |
| Bacteria toxicity :                 | EC50 > 1.000 mg/l<br>Method : fermentation tube test |
| Dissolved Organic carbon<br>(DOC) : | 560 mg/g                                             |
| Chemical oxygen demand<br>(COD) :   | 1.330 mg/g                                           |

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Substance key: SXR025638  
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Date of printing : 13.11.2008**13. Disposal considerations****Product**

In accordance with local authority regulations, take to special waste incineration plant

**14. Transport information**

|      |                |
|------|----------------|
| ADR  | not restricted |
| ADNR | not restricted |
| RID  | not restricted |
| IATA | not restricted |
| IMDG | not restricted |

**15. Regulatory information****Labelling in accordance with EC-Directives**

hazard warning labelling compulsory

**Hazard symbols**

Xi                      Irritant

**Hazardous component(s) to be indicated on label**

Organic phosphoric ester

**R phrases**

- |    |                                 |
|----|---------------------------------|
| 38 | Irritating to skin.             |
| 41 | Risk of serious damage to eyes. |

**S phrases**

- |       |                                                                                               |
|-------|-----------------------------------------------------------------------------------------------|
| 26    | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |
| 28.2  | After contact with skin, wash immediately with water and soap.                                |
| 37/39 | Wear suitable gloves and eye/face protection.                                                 |

**Chemical Safety Assessment**

No Chemical Safety Assessment (CSA) is yet available for the substance, or for the component substances, contained in this product.

**16. Other information**Decimal notation: "Thousands" places are identified with a dot (example: 2.000 mg/kg means "two thousand mg/kg"). Decimal places are identified with a comma (example: 1,35 g/cm<sup>3</sup>).



**Safety Data Sheet in accordance with Regulation (EC) No  
1907/2006****FLOTINOR SM 15**

Page 6

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Substance key: SXR025638  
Version : 2 - / EU

Revision Date: 27.10.2008  
Date of printing : 13.11.2008

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The data are based on the current state of our knowledge, and are intended to describe the product with regard to the requirements of safety. The data should not be taken to imply any guarantee of a particular or general specification. It is the responsibility of the user of the product to ensure to his satisfaction that the product is suitable for the intended purpose and method of use. We do not accept responsibility for any harm caused by the use of this information. In all cases, our general conditions of sale apply.

# MATERIAL SAFETY DATA SHEET - 9 Sections

## SECTION 1 - PRODUCT INFORMATION

|                                                      |                               |                                 |                      |
|------------------------------------------------------|-------------------------------|---------------------------------|----------------------|
| Product Identifier: Nechalacho rock powder           |                               | WHMIS Classification (optional) |                      |
| Product Use: intermediate mineral product            |                               |                                 |                      |
| Manufacturer's Name: Avalon Rare Metals Inc          |                               | Supplier's Name:                |                      |
| Street Address: 130 Adelaide Street West, Suite 1901 |                               | Street Address:                 |                      |
| City: Toronto                                        | Province: Ontario             | City:                           | Province:            |
| Postal Code: M5H 3P5                                 | Emergency phone: 416 368 4938 | Postal Code:                    | Emergency Telephone: |

## SECTION 2 - INGREDIENTS

| Ingredients (Specific)     | %      | CAS Number |
|----------------------------|--------|------------|
| Biotite                    | 30     | 12001-26-2 |
| Feldspar                   | 15     | none       |
| Quartz                     | 15     | 14808-60-7 |
| Zircon                     | 10     | 14940-68-2 |
| Bastnaesite                | 8      | 68909-13-7 |
| Muscovite                  | 6      | 12678-07-8 |
| Carbonates (calcite)       | 4      | 1317-65-3  |
| Fe/Mg silicates            | 4      | none       |
| Magnetite                  | 8      | 1317-61-9  |
| Uranium (as inert mineral) | 0.0012 | 7440-29-1  |
| Thorium (as inert mineral) | 0.0060 | 7440-61-1  |
| TOTAL                      | 100    |            |

## SECTION 3 - PHYSICAL DATA

|                                    |                                             |                                                       |
|------------------------------------|---------------------------------------------|-------------------------------------------------------|
| Physical State: solid powder       | Odour and Appearance: Grey powder, no odour | Odour Threshold (ppm): no odour                       |
| Specific Gravity: approx 2.8       | Vapour Density (air=1):                     | Vapour Pressure (mmHg):                               |
| Boiling Point (°C): not applicable | Freezing Point (°C): not applicable         | pH: dry, but with water, neutral                      |
|                                    |                                             | Evaporation Rate: not applicable                      |
|                                    |                                             | Coefficient of Water/Oil Distribution: not applicable |

## SECTION 4 - FIRE AND EXPLOSION DATA

|                                                                                   |                                                           |                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------|
| Flammability: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | If yes, under which conditions: Material is not flammable |                                                   |
| Means of Extinction:                                                              |                                                           |                                                   |
| Flashpoint (°C) and Method: will not burn                                         | Upper Flammable Limit (% by volume):                      | Lower Flammable Limit (% by volume):              |
| Autoignition Temperature (°C): material will not burn                             | Explosion Data - Sensitivity to Impact:                   | Explosion Data - Sensitivity to Static Discharge: |
| Hazardous Combustion Products: none                                               |                                                           |                                                   |

## SECTION 5 - REACTIVITY DATA

|                                                                                         |                                                                                                                                                                |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chemical Stability: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | If no, under which conditions? Can react with some acids releasing carbon dioxide due to low content (<5%) of carbonate minerals. Remaining minerals are inert |
| Incompatibility with Other Substances                                                   | If yes, which ones?:                                                                                                                                           |
| Reactivity, and under what conditions?: Only with acid as noted above                   |                                                                                                                                                                |
| Hazardous Decomposition Products: none                                                  |                                                                                                                                                                |

**Product Identifier**

**SECTION 6 - TOXICOLOGICAL PROPERTIES**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Route of Entry:</b> <input checked="" type="checkbox"/> Skin Contact <input type="checkbox"/> Skin Absorption <input checked="" type="checkbox"/> Eye Contact <input checked="" type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                      |
| <b>Effects of Acute Exposure to Product:</b> non toxic by ingestion. Swallowing large amount may irritate digestive system due to abrasiveness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                      |
| Eye: Dust may be irritating due to abrasiveness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                      |
| Skin: may cause irritation due to abrasiveness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                      |
| Inhalation: Size of product (about 3 mm) is generally outside respirable range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                      |
| <b>Effects of Chronic Exposure to Product:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                      |
| General: main exposure route is dust inhalation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                      |
| Silica: Crystalline silica is known cause of silicosis and has been classified as human carcinogen. The material contains up to 15% silica (quartz) and precautions should be taken to avoid inhaling the dust.                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                      |
| Thorium and uranium: The material contains very low levels of both natural thorium (Th-nat at 60 ppm) and uranium (U-nat at 12 ppm) in radioactive equilibrium . The material may exhibit gamma radiation exposure rates above background levels. The material is exempt from transport regulations for natural materials and ores containing naturally occurring radioactive material (NORM) (IAEA regulations TS-R-1); the measured concentrations of Th-nat (0.3 Bq/g of Ra-228) and U-nat (0.2 Bq/g of Ra-226 and Pb-210) radionuclides are well below the 10 Bq/g transport exemption limits for Th-nat and U-nat in NORM. |                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                      |
| <b>Exposure Limits (value, source, date)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Irritancy (if yes, explain)</b><br><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO            |
| <b>Sensitization (if yes, explain)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Carcinogenicity (if yes, explain)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO      |
| <b>Reproductive Toxicity (if yes, explain)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Teratogenicity (if yes, explain)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO       |
| <b>Mutagenicity (if yes, explain)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Synergistic Products (if yes, explain)</b><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |

**SECTION 7 - PREVENTIVE MEASURES**

|                                                                                                                                                                                                                                                                            |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Personal Protective Equipment:</b> <input checked="" type="checkbox"/> Gloves <input type="checkbox"/> Respirator <input checked="" type="checkbox"/> Eye <input type="checkbox"/> Footwear <input checked="" type="checkbox"/> Clothing <input type="checkbox"/> Other |             |
| <b>If checked, specific type:</b> Wear regular work gloves. Eye protection with side shields to protect against abrasive effects.                                                                                                                                          |             |
|                                                                                                                                                                                                                                                                            |             |
| <b>Engineering Controls (specify, such as ventilation, enclosed process):</b> Ventilation should be used to maintain dust levels below exposure limits for silica.                                                                                                         |             |
|                                                                                                                                                                                                                                                                            |             |
| <b>Leak and Spill Procedure:</b> see handling below                                                                                                                                                                                                                        |             |
|                                                                                                                                                                                                                                                                            |             |
| <b>Waste Disposal:</b> Dispose of in approved landfill site                                                                                                                                                                                                                |             |
|                                                                                                                                                                                                                                                                            |             |
| <b>Handling Procedures and Equipment:</b> Wear safety equipment as for normal handling. Avoid generating dust. Vacuum up or sweep up any spillage. Dispose of in approved landfill site. Wash hands before eating, drinking or smoking.                                    |             |
|                                                                                                                                                                                                                                                                            |             |
| <b>Storage Requirements:</b> store avoiding locations where dust can be generated.                                                                                                                                                                                         |             |
|                                                                                                                                                                                                                                                                            |             |
| <b>Special Shipping Information:</b> none                                                                                                                                                                                                                                  | <b>Pin:</b> |

**SECTION 8 - FIRST AID MEASURES**

|                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation:</b> move to fresh air. Blow nose to remove particulates. If adverse reaction, seek medical attention.                                                                                      |
| <b>Ingestion:</b> wash mouth out with water ensuring mouthwash not swallowed. Seek medical attention if discomfort occurs.                                                                                |
| <b>Skin Contact:</b> Gently remove contaminated clothing and launder. Wash skin. Seek medical attention if any irritation occurs.                                                                         |
| <b>Eye Contact:</b> check for and remove contact lenses. Hold eyelid open and flush with clean water, persisting for 15 minutes or until grit is removed. Seek medical attention if irritation continues. |

**SECTION 9 - PREPARATION INFORMATION**

|                                                                                                                |                                       |                                        |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------|
| <b>Prepared by (Group, Department, etc.):</b> Document has been prepared by Avalon Rare Metals Technical Group | <b>Telephone Number:</b> 416 364 4938 | <b>Preparation Date:</b> March 16 2011 |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------|

# Material Safety Data Sheet

## DL-Lactic acid

ACC# 00827

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** DL-Lactic acid

**Catalog Numbers:** AC125060000, AC125060010, AC125060025, AC125060250, AC412960000, AC412965000, 12506-5000, A159-500, A162-1, A162-500, S80046

**Synonyms:** 2-Hydroxypropanoic acid.

**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

| CAS#      | Chemical Name  | Percent | EINECS/ELINCS |
|-----------|----------------|---------|---------------|
| 50-21-5   | DL-Lactic acid | 85+     | 200-018-0     |
| 7732-18-5 | Water          | < 15    | 231-791-2     |

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: Not available.

**Warning!** Eye contact may result in permanent eye damage. Causes eye, skin, and respiratory tract irritation. Corrosive to metal.

**Target Organs:** Blood, kidneys, respiratory system, eyes, skin.

#### Potential Health Effects

**Eye:** Causes eye irritation. Risk of serious damage to eyes.

**Skin:** Causes skin irritation. May be harmful if absorbed through the skin.

**Ingestion:** May cause irritation of the digestive tract. May be harmful if swallowed.

**Inhalation:** Causes respiratory tract irritation. May be harmful if inhaled.

**Chronic:** Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects. Chronic exposure may cause blood effects. May cause kidney damage.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** Do not induce vomiting. Get medical aid.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Flash Point:** > 110 deg C (> 230.00 deg F)

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:**Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 2; Flammability: 1; Instability: 1

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Provide ventilation. Do not let this chemical enter the environment.

## Section 7 - Handling and Storage

**Handling:** Use with adequate ventilation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale.

**Storage:** Store in a cool, dry place. Store in a tightly closed container. Corrosives area. Do not store in metal containers.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

### Exposure Limits

| Chemical Name  | ACGIH       | NIOSH       | OSHA - Final PELs |
|----------------|-------------|-------------|-------------------|
| DL-Lactic acid | none listed | none listed | none listed       |
| Water          | none listed | none listed | none listed       |

**OSHA Vacated PELs:** DL-Lactic acid: No OSHA Vacated PELs are listed for this chemical. Water: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Viscous liquid

**Appearance:** Not available.  
**Odor:** acrid odor  
**pH:** 2.8 (10g/L aq.sol.)  
**Vapor Pressure:** Not available.  
**Vapor Density:** Not available.  
**Evaporation Rate:**Not available.  
**Viscosity:** Not available.  
**Boiling Point:** 122 deg C @ 15 mmHg  
**Freezing/Melting Point:**18 deg C  
**Decomposition Temperature:**Not available.  
**Solubility:** Soluble.  
**Specific Gravity/Density:**1.200  
**Molecular Formula:**C3H6O3  
**Molecular Weight:**90.08

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.  
**Conditions to Avoid:** Incompatible materials, excess heat, temperatures above 200°C, exposure to moist air or water.  
**Incompatibilities with Other Materials:** Metals, strong oxidizing agents, strong reducing agents, strong bases, nitric acid, iodides.  
**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.  
**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 50-21-5: OD28000000

**CAS#** 7732-18-5: ZC0110000

**LD50/LC50:**

**CAS#** 50-21-5:

Draize test, rabbit, eye: 750 ug Severe;  
Draize test, rabbit, skin: 5 mg/24H Severe;  
Draize test, rabbit, skin: 100 mg/24H Moderate;  
Oral, mouse: LD50 = 4875 mg/kg;  
Oral, rat: LD50 = 3543 mg/kg;  
Skin, rabbit: LD50 = >2 gm/kg;

**CAS#** 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

**Carcinogenicity:**

**CAS#** 50-21-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**CAS#** 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** Adverse reproductive effects have occurred in experimental animals.

**Mutagenicity:** Mutagenic effects have occurred in experimental animals.

**Neurotoxicity:** No information found

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** No data available. No information available.

**Environmental:** No information available.

**Physical:** No information available.

**Other:** Do not empty into drains.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

|                         | US DOT                                    | Canada TDG                         |
|-------------------------|-------------------------------------------|------------------------------------|
| <b>Shipping Name:</b>   | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. | CORROSIVE LIQUID, ACIDIC, ORGANIC, |
| <b>Hazard Class:</b>    | 8                                         | 8                                  |
| <b>UN Number:</b>       | UN3265                                    | UN3265                             |
| <b>Packing Group:</b>   | III                                       | III                                |
| <b>Additional Info:</b> |                                           | N.O.S.                             |

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 50-21-5 is listed on the TSCA inventory.

CAS# 7732-18-5 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 50-21-5: immediate.

**Section 313** No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 50-21-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

XI

**Risk Phrases:**

R 37/38 Irritating to respiratory system and skin.

R 41 Risk of serious damage to eyes.

**Safety Phrases:**

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

**WGK (Water Danger/Protection)**

CAS# 50-21-5: 0

CAS# 7732-18-5: No information available.

**Canada - DSL/NDL**

CAS# 50-21-5 is listed on Canada's DSL List.

CAS# 7732-18-5 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 50-21-5 is listed on the Canadian Ingredient Disclosure List.

|                                            |
|--------------------------------------------|
| <b>Section 16 - Additional Information</b> |
|--------------------------------------------|

**MSDS Creation Date:** 10/07/1997

**Revision #11 Date:** 4/02/2008

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*



# Safety Data Sheet

According to ASCC National Code of Practice for the Preparation of Material Safety Data Sheets



MAGNAFLOC 156

Release: 1.0 (AU)  
Date / Revised: 05.03.2008  
Date of Print 06.03.2008

## 1. Identification of the Substance/Preparation and of the Company/Undertaking

Designation/Trade Name: **MAGNAFLOC 156**  
Use: flocculation agent  
Company: Ciba (Australia) Pty. Limited  
235 Settlement Road  
P.O Box 332  
AU-THOMASTOWN, VIC 3074  
Australia  
Tel +61-3-92 82 06 00  
Fax +61-3-94 65 90 70

Emergency contact: 1800 033 111

## 2. Hazards Identification

NON-HAZARDOUS SUBSTANCE, NON-DANGEROUS GOODS

## 3. Composition/Information on Ingredients

### Chemical nature:

Anionic polyacrylamide

The product contains no substances classified as hazardous to health or the environment in concentrations which should be taken into account according to EC directives

## 4. First-aid Measures

### If inhaled:

Move to fresh air. Seek medical attention if you feel unwell or if exposure prolonged. If conscious place in a safe sitting or recovery position. Keep the casualty at rest.

### On skin contact:

Remove contaminated clothing. Wash affected skin with soap and plenty of water. If skin irritation or dermatitis commences or persists seek medical attention.

### On contact with eyes:

Rinse immediately with plenty of water for at least 10 minutes taking care to wash under the eyelids. If irritation persists, seek medical attention.

### On ingestion:

Do not induce vomiting. Never give anything by mouth to an unconscious person. Check breathing and pulse. Place victim in the recovery position, cover and keep warm. Loosen tight clothing such as a collar, tie, belt or waistband. Seek medical attention. Rinse mouth and then drink plenty of water.

## 5. Fire-fighting Measures

### Suitable extinguishing media:

foam, dry powder, carbon dioxide

### Unsuitable extinguishing media for safety reasons:

If water is used, restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

# Safety Data Sheet

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Release: 1.0 (AU)

Date / Revised: 05.03.2008

Date of Print 06.03.2008

MAGNAFLOC 156

## **Specific hazards:**

Carbon and nitrogen oxides.

## **Exposure hazards:**

Very slippery when wet.

## **Special protective equipment:**

Chemical protection suit, suitable gloves, boots and self contained breathing apparatus.

## **6. Accidental Release Measures**

### **Personal precautions:**

Avoid dust formation. Suitable dust-mask. Use personal protective clothing.

### **Environmental precautions:**

Prevent entry into sewage systems, ground and surface waters.

### **Methods for cleaning-up or taking-up:**

Spilled product which becomes wet or spilled aqueous solution create a hazard because of their slippery nature. Pick up with inert absorbent material (e.g. sand, earth etc.). Sweep up and shovel into suitable containers for disposal. Residues or small spillages should be hosed away completely with plenty of water. Contain washwater and dispose of in accordance with local regulations.

## **7. Handling and Storage**

### **Handling**

Remove contaminated clothing immediately and launder before re-use.

Before breaks and end of work wash hands and/or face.

Avoid dust formation and ignition sources. Ensure good local exhaust ventilation. Do not eat, drink or smoke at the workplace.

Slip hazard when wet.

### **Protection against fire and explosion:**

As with many organic powders flammable dust clouds may be formed

### **Storage requirements:**

Avoid dust formation and ignition sources. Ensure good local exhaust ventilation. Do not eat, drink or smoke at the workplace.

Keep in a dry, cool place.

Avoid extremes of temperature.

Avoid wet or humid conditions.

## **8. Exposure Controls and Personal Protection**

### **Exposure limit values**

### **Engineering Controls:**

Provide appropriate exhaust ventilation at machinery and at places where dust can be generated.

Ensure adequate ventilation, especially in confined areas.

### **Respiratory protection:**

Respirator must be worn if exposed to dust.

Respirator (Disposable, EN149 FFP2S).

Half or full face mask with a particle filter type P2. (European standard EN 143).

### **Hand protection:**

PVC or other plastic material gloves.

Protective rubber gloves.

### **Eye protection:**

Safety glasses with side-shields (frame goggles) (EN 166)

# Safety Data Sheet

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Release: 1.0 (AU)

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MAGNAFLOC 156

## Body protection:

Lightweight protective clothing.

## 9. Physical and Chemical Properties

|                                                     |                                                                 |
|-----------------------------------------------------|-----------------------------------------------------------------|
| Form:                                               | beads                                                           |
| Colour:                                             | off-white                                                       |
| Odour:                                              | mild                                                            |
| pH value:                                           | 6<br>(25 °C)<br>1% solution                                     |
| Melting point:                                      | not determined                                                  |
| Flash point:                                        | not determined                                                  |
| Explosion hazard:                                   | No explosive properties, except in the event of dust formation. |
| Fire promoting properties:                          | Not applicable                                                  |
| Vapour pressure:                                    | not determined                                                  |
| Density:                                            | 0,75 g/cm <sup>3</sup>                                          |
| Bulk density:                                       | not determined                                                  |
| Solubility in water:                                | soluble                                                         |
| Partitioning coefficient n-octanol/water (log Pow): | not determined                                                  |

## 10. Stability and Reactivity

### Conditions to avoid:

Avoid humidity. Avoid extreme temperatures.

### Materials to avoid:

, Reactive chemicals.

### Hazardous decomposition products:

No decomposition expected under normal storage conditions.

## 11. Toxicological Information

### Acute oral toxicity:

rat/LD50: > 2.000 mg/kg

By analogy with a product of similar composition

### Acute dermal toxicity:

Not tested

### Acute inhalation toxicity:

Not tested

### Skin irritation/corrosion:

non-irritant (Conventional method)

# Safety Data Sheet

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MAGNAFLOC 156

**Eye irritation/corrosion:**

non-irritant (Conventional method)

**Skin Sensitization:**

Not tested

## 12. Ecological Information

**Toxicity to fish:**

Oncorhynchus mykiss/96 h/LC50: 230 mg/l  
(under static conditions in the presence of humic acid)

**Toxicity to aquatic invertebrates:**

Ceriodaphnia dubia/48 h/LC50: 110 mg/l  
(under static conditions in the presence of humic acid)

**Toxicity to aquatic plants:**

not determined

## 13. Disposal Considerations

**Waste disposal of substance:**

Observe all local regulations.

**Contaminated packaging:**

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.

## 14. Transport Information

**Domestic transport (ADG):**

Not classified as a dangerous good under transport regulations.

**Sea transport (IMDG):**

Not classified as a dangerous good under transport regulations.

**Air transport (ICAO/IATA):**

Not classified as a dangerous good under transport regulations.

## 15. Regulatory Information

**Other regulations****Further information:**

NICNAS/AICS:

All components in this product are listed on the inventory

Standard for the Uniform Scheduling of Drugs and Poisons:

Not applicable

Agricultural and Veterinary Chemicals Act 1988:

Not applicable

# Safety Data Sheet

According to ASCC National Code of Practice for the Preparation of Material Safety  
Data Sheets



Release: 1.0 (AU)

Date / Revised: 05.03.2008

Date of Print 06.03.2008

MAGNAFLOC 156

## 16. Other Information

### Use:

#### Restricted use:

THIS MATERIAL IS NOT INTENDED FOR USE IN PRODUCTS FOR WHICH PROLONGED CONTACT WITH MUCOUS MEMBRANES, BODY FLUIDS OR ABRADED SKIN, OR IMPLANTATION WITHIN THE HUMAN BODY, IS SPECIFICALLY INTENDED, UNLESS THE FINISHED PRODUCT HAS BEEN TESTED IN ACCORDANCE WITH NATIONALLY AND INTERNATIONALLY APPLICABLE SAFETY TESTING REQUIREMENTS. BECAUSE OF THE WIDE RANGE OF SUCH POTENTIAL USES, CIBA IS NOT ABLE TO RECOMMEND THIS MATERIAL AS SAFE AND EFFECTIVE FOR SUCH USES AND ASSUMES NO LIABILITY FOR SUCH USES.

Vertical lines in the left hand margin indicate an amendment from the previous version.

This product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with any legal regulation. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

# Material Safety Data Sheet

Science Stuff, Inc.  
1104 Newport Ave  
Austin, TX 78753

Phone (512) 837-6020  
Chemtrec 800-424-9300  
24 Hour Emergency Assistance

## Section 1 Identification

|                         |                                      |                                          |           |
|-------------------------|--------------------------------------|------------------------------------------|-----------|
| Product Number:         | C2194                                | Health:                                  | 3         |
| Product Name:           | Oxalic Acid Technical Grade, Crystal | Flammability:                            | 1         |
| Trade/Chemical Synonyms |                                      | Reactivity:                              | 0         |
| Formula:                | HOCOCOOH $\frac{1}{2}$ 2H $\cdot$ O  | Hazard Rating:                           |           |
| RTECS:                  | RO2450000                            | Least Slight Moderate High Extreme       | 0 1 2 3 4 |
| C.A.S                   | CAS# 6153-56-6                       | NA = Not Applicable NE = Not Established |           |

## Section 2 Component Mixture

| Sara 313                 | Component   | CAS Number     | %    | Dim | Exposure Limits:                                |
|--------------------------|-------------|----------------|------|-----|-------------------------------------------------|
| <input type="checkbox"/> | Oxalic Acid | CAS# 6153-56-6 | 100% | w/w | ACGIH TLV: 1 mg/m $\cdot$ f (as anhydrous acid) |

## Section 3 Hazard Identification (Also see section 11)

May be fatal if inhaled, swallowed or absorbed thru the skin Avoid all contact. Use with adequate ventilation. Wash thoroughly after use. Keep container closed.

## Section 4 First Aid Measures

May be fatal if inhaled, swallowed or absorbed thru the skin Avoid all contact. Use with adequate ventilation. Wash thoroughly after use. Keep container closed.

FIRST AID: CALL A PHYSICIAN. SKIN: In case of contact, immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Thoroughly clean clothing and shoes before reuse.

EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen

INGESTION: If swallowed, induce vomiting immediately after giving two glasses of water. Never give anything by mouth to an unconscious person.

## Section 5 Fire Fighting Measures

Fire Extinguisher Type: Water spray, dry chemical, carbon dioxide, alcohol foam

Fire/Explosion Hazards: Reacts at extreme temperatures with violent decomposition.

Fire Fighting Procedure: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

## Section 6 Accidental Release Measures

Sweep up and place in suitable (fiberboard) containers for reclamation or later disposal. Wear protective equipment. Keep solutions out of sewer.

## Section 7 Handling and Storage

Store in a cool, dry, well-ventilated place away from incompatible materials. Wash thoroughly after handling.

## Section 8 Exposure Controls & Personal Protection

Respiratory Protection: NIOSH/MSHA-approved respirator

Mechanical: ☒ Ventilation: Local Exhaust: ☐

Hand Protection: NIOSH Approved Gloves

Eye Splash Protection: Goggles

Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

## Section 9 Physical and Chemical Properties

Melting Point: 101.5° C Specific Gravity 1.653

Boiling Point: N/A Percent Volatile by Volume: N/A

Vapor Pressure: N/A Evaporation Rate: N/A

Vapor Density: N/A Evaporation Standard:

Solubility in Water: 11.7% Auto ignition Temperature: Not applicable

Appearance and Odor: Colorless crystals, odorless Lower Flamm. Limit in Air: Not applicable

Flash Point: N/A Upper Flamm. Limit in Air: Not applicable

## Section 10 Stability and Reactivity Information

Conditions to Avoid: Avoid contact

Stability: Stable with incompatible materials. High temperatures

Materials to Avoid: Alkalies, silver, chlorites, hypochlorites water reactive material and oxidizers

Hazardous Decomposition Products: Formic acid, carbon monoxide, carbon dioxide

Hazardous Polymerization: Will Not Occur

Condition to Avoid: None known

## Section 11 Additional Information

Inhalation of dust or mist may cause irritation or burns to upper respiratory system, nose, mouth or throat. Ingestion may cause irritation or burns to mouth throat or stomach. Contact with skin or eyes may cause irritation or burns. Conditions aggravated/target organs: Persons with pre-existing eye, skin or respiratory conditions may be more susceptible.

DOT Classification: Corrosive Solid, n.o.s. (Oxalic Acid), 8, UN1759, PG III

DOT regulations may change from time to time. Please consult the most recent version of the relevant regulations.

Revision  
No:0

Date Entered:  
9/1/2006

Approved by:  
WPF

The information contained herein is believed to be accurate and is offered in good faith for the user's consideration and investigation. No warranty is expressed or implied regarding the completeness or accuracy of this information, whether originating from Science Stuff, Inc. or from an alternate source. Users of this material should satisfy themselves by independent investigation of current scientific and medical information that this material may be safely handled.

## Section 1: Product And Company Identification

**Product Name:** Quick Lime  
**Chemical Family:** Calcium Oxide  
**Product Use:** Drilling Fluid Additive

### Workplace Hazardous Information Systems Data:

Class ID Class Work Place Hazard



D-2-A Materials Causing Other Toxic Effects - Very Toxic Toxic effects



E Corrosive Materials Corrosive

**Manufacturer Name:** Alliance Energy Services Ltd.  
**Address:** #1840, 840 - 7 Ave S.W, Calgary, AB T2P 3G2 CA  
**General Phone Number:** (403)663-9766  
**General Fax Number:** (403)294-0023  
**MSDS Revision Date:** January 1, 2008  
**Supersedes:** January 1, 2005  
**Prepared By:** Alliance Energy Services Ltd.  
**Preparer's Phone:** (403)663-9766

## Section 2: Composition/Information On Ingredients

| Chemical Name              | Concentration | CAS#       |
|----------------------------|---------------|------------|
| Crystalline Silica, Quartz | >0.1%         | 14808-60-7 |
| Calcium Oxide              | >90%          | 1305-78-8  |

## Section 3: Hazards Identification

**Emergency Overview:** Consult a doctor for all exposures except minor instances of inhalation.

### Routes of Entry:

**Skin Contact:** Yes  
**Skin Absorption:** No  
**Eye Contact:** Yes  
**Inhalation:** Yes  
**Ingestion:** Yes

### Potential Health Effects:

**Skin:** Irritation, burning and corrosion of mucous and skin. Dehydration of tissues.  
**Eye:** Severe eye irritant. Intense watering of the eyes, possible lesions, possible blindness when exposed for prolonged period. (Draize >80)  
**Inhalation:** If inhaled, in form of dust, nose and throat irritation, cough, sneezing, inflammation of breathing passages, ulceration and perforation of nasal septum, bronchitis, possible pneumonia.  
**Ingestion:** If ingested, possible burning and edema of digestive tracts, abundant salivation, difficulties in swallowing and breathing, vomiting blood, drop in blood pressure(indicates perforation of esophagus or stomach.)

## Section 4: First Aid Measures



|                         |                                                                                                                                                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact:</b>     | Immediately rinse contaminated area with gently running lukewarm water for at least 15 minutes. In all cases, seek immediate medical attention.                                                              |
| <b>Skin Contact:</b>    | Carefully brush the contaminated body surfaces in order to remove all traces of lime. Remove all clothing. Rinse contaminated areas with lukewarm water for 15 minutes. Seek medical attention.              |
| <b>Inhalation:</b>      | Move to fresh air. Obtain medical attention immediately. If victim is not breathing, administer artificial respiration.                                                                                      |
| <b>Ingestion:</b>       | DO NOT INDUCE VOMITING> if victim is conscious, give 300ml of water, followed by dilute vinegar (1 part vinegar to 2 parts water) or fruit juice to neutralize the alkali. Seek immediate medical attention. |
| <b>Other First Aid:</b> | Consult a doctor for all exposures except minor instances of inhalation.                                                                                                                                     |

## Section 5: Fire Fighting Measures

|                                                   |                                                                                                                                                                                          |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Conditions Of Flammability:</b>                | Non-flammable                                                                                                                                                                            |
| <b>Extinguishing Media:</b>                       | Avoid using water unless necessary for other materials, in which case, flood to absorb heat generated. (Contact with water will evolve heat and could cause paper, cardboard to ignite.) |
| <b>Flashpoint:</b>                                | Not Applicable                                                                                                                                                                           |
| <b>Upper Flammable Limit:</b>                     | Not Applicable                                                                                                                                                                           |
| <b>Lower Flammable Limit:</b>                     | Not Applicable                                                                                                                                                                           |
| <b>Autoignition Temperature:</b>                  | Not Applicable                                                                                                                                                                           |
| <b>Protective Equipment:</b>                      | Firefighters must wear appropriate breathing apparatus and clothing.                                                                                                                     |
| <b>Sensitivity To Impact or Static Discharge:</b> | Not Applicable                                                                                                                                                                           |
| <b>Hazardous Combustion Products:</b>             | Not Applicable                                                                                                                                                                           |
| <b>Fire Comment:</b>                              |                                                                                                                                                                                          |

## Section 6: Accidental Release Measures

|                                |                                                                                                                                                                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personnel Precautions:</b>  | Use proper personal protective equipment as listed in section 8.                                                                                                                                                                        |
| <b>Spill Cleanup Measures:</b> | Use appropriate safety equipment. Small spills, sweep up and put into approved DOT containers for disposal or reuse. Large spills, do not allow to enter waterways, sweep or shovel into approved DOT containers for reuse or disposal. |

## Section 7: Handling And Storage

|                  |                                                                                                                  |
|------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Handling:</b> | Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact.               |
| <b>Storage:</b>  | Store in a cool, dry, well ventilated place. Keep container tightly closed and away from incompatible materials. |

## Section 8: Exposure Controls, Personal Protection - Exposure Guidelines

|                                       |                                                                                                                                        |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Engineering Controls:</b>          | Provide mechanical ventilation to prevent dust concentrations, and to reduce potential exposure.                                       |
| <b>Personal Protective Equipment:</b> | Chemical resistant clothing is recommended including glove, apron and goggles do not wear contact lenses when handling this material.. |
| <b>Respiratory Protection:</b>        | Recommend NIOSH approved dust respirator.                                                                                              |
| <b>Exposure Limits:</b>               | Not Determined                                                                                                                         |

| Chemical Name              | ACGIH TLV-TWA          | OSHA PEL-TWA          |
|----------------------------|------------------------|-----------------------|
| Crystalline Silica, Quartz | 0.05 mg/m <sup>3</sup> | 0.1 mg/m <sup>3</sup> |
| Calcium Oxide              | 2                      | 5                     |

## Section 9: Physical And Chemical Properties

|                              |                         |
|------------------------------|-------------------------|
| <b>Physical State:</b>       | Solid                   |
| <b>Odour And Appearance:</b> | White powder, odourless |
| <b>Odour Threshold:</b>      | Not Applicable          |
| <b>Boiling Point:</b>        | 2850°C                  |

|                                           |                |
|-------------------------------------------|----------------|
| Evaporation Rate:                         | Not Applicable |
| Melting Point:                            | 2580°C         |
| Freezing Point:                           | Not Applicable |
| Density:                                  | 3.2-3.4        |
| Vapour Density:                           | Not Applicable |
| Vapour Pressure:                          | Not Applicable |
| pH:                                       | 12.45          |
| Flash Point:                              | Not Applicable |
| Volatility (% by volume):                 | Not Applicable |
| Coefficient of Water to Oil distribution: | Not Applicable |

## Section 10: Stability And Reactivity

|                                     |                                                                                                                                                                                                        |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chemical Stability:                 | No                                                                                                                                                                                                     |
| Hazardous Polymerization:           | Will not occur.                                                                                                                                                                                        |
| Conditions Of Chemical Instability: | Absorbs moisture and carbon dioxide in air to form calcium hydroxide and calcium carbonate.                                                                                                            |
| Incompatible Substances:            | Boron tri-fluoride, chlorine tri-fluoride, ethanol, fluorine, hydrogen flouride, phosphorus pentoxide, water and acids (violent reaction with generating heat and possible explosion in confined area) |
| Special Decomposition Products:     | None                                                                                                                                                                                                   |

## Section 11: Toxicological Information

|                            | LD50<br>(Oral Rat) | LD50<br>(Dermal Rabbit) | LC50<br>(Inhalation Rat) |
|----------------------------|--------------------|-------------------------|--------------------------|
| Crystalline Silica, Quartz | Not Available      | Not Available           | Not Available            |
| Calcium Oxide              | Not Available      | Not Available           | Not Available            |

|                               |                                                      |
|-------------------------------|------------------------------------------------------|
| Effects Of Acute Exposure:    | Not Determined                                       |
| Effects Of Chronic Exposure:  | Contact Dermatitis.                                  |
| General Irritancy Of Product: | Severe to moist tissue.                              |
| Sensitization:                | Not Determined                                       |
| Carcinogenicity:              | Could contain crystalline silica a known carcinogen. |
| Reproductive Toxicity:        | Not Applicable                                       |
| Teratogenicity:               | Not Applicable                                       |
| Embryotoxicity:               | Not Available                                        |
| Mutagenicity:                 | Not Applicable                                       |
| Synergistic Products:         | Not Applicable                                       |

## Section 12: Ecological Information

|                     |               |
|---------------------|---------------|
| Ecotoxicity:        | Not Available |
| Environmental Fate: | Not Available |

## Section 13: Disposal Considerations

|                 |                                                                                                                                                                                                      |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waste Disposal: | All waste should be disposed of according to Federal, Provincial and local regulations. Containers should NOT be reused. Containers should be disposed of in accordance with government regulations. |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Section 14: Transport Information

|                     |                          |
|---------------------|--------------------------|
| TDG Classification: | Not Regulated            |
| DOT UN Number:      | Not Regulated            |
| Shipping Notes:     | No special requirements. |

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## Section 15: Regulatory Information

---

Workplace Hazardous Information Systems Data (WHMIS):

|                                                                                   | Class ID | Class                                              | Work Place Hazard |
|-----------------------------------------------------------------------------------|----------|----------------------------------------------------|-------------------|
|  | D-2-A    | Materials Causing Other Toxic Effects - Very Toxic | Toxic effects     |
|  | E        | Corrosive Materials                                | Corrosive         |

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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## Section 16: Additional Information

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**MSDS Revision Date:** January 1, 2008

**MSDS Revision Notes:**

**MSDS Author:** Alliance Energy Services Ltd.

**Disclaimer:** This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment. Should further information be required, this can be obtained through the sales office whose address is at the top of this data sheet.



## Material Safety Data Sheet

**LA0567**  
**Sodium Silicate N**

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Id:** LA0567

**Product Name:** Sodium Silicate N

**Synonyms:** None

**Chemical Family:** None Known

**Application:** Adhesive, binder, pulp & paper, water treatment, catalysts & gels.

**Distributed By:**

Univar Canada Ltd.  
9800 Van Horne Way  
Richmond, BC  
V6X 1W5

**Prepared By:** The Safety, Health and Environment Department of Univar Canada Ltd.

**Preparation date of MSDS:** 09 February 2007

**Telephone number of preparer:** 1-866-686-4827

**24-Hour Emergency Telephone Number (CANUTEC):** (613) 996-6666

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredients                  | Percentage (W/W) | LD50s and LC50s Route & Species:                                   |
|------------------------------|------------------|--------------------------------------------------------------------|
| Water<br>7732-18-5           | 62.5             | Oral LD50 (Rat) >90 mL/kg                                          |
| Sodium silicate<br>1344-09-8 | 37.5             | Oral LD50 (Rat) : 1960 mg/kg<br>Dermal LD50 (Rabbit) : >4640 mg/kg |

**Note:** No additional remark.

### 3. HAZARDS IDENTIFICATION

**Potential Acute Health Effects:**

**Eye Contact:** Causes eye irritation.

**Skin Contact:** Causes moderate skin irritation.

**Inhalation:** Mists may cause irritation of upper respiratory tract.

**Ingestion:** May cause irritation to mouth, esophagus and stomach. Causes digestive tract irritation.

#### 4. FIRST AID MEASURES

**Eye Contact:** In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Get medical attention. Immediately remove contaminated clothing and shoes.

**Inhalation:** Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

**Ingestion:** Do not induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

**Notes to Physician:** Treat symptomatically.

#### 5. FIRE FIGHTING MEASURES

**Flash Point:** None.

**Flash Point Method:** Not applicable.

**Autoignition Temperature:** Not Available.

**Flammable Limits in Air (%):** Not Available.

**Extinguishing Media:** Use extinguishing media appropriate for surrounding fire.

**Special Exposure Hazards:** None expected.

**Hazardous Decomposition/Combustion Materials (under fire conditions):** Hydrogen.

**Special Protective Equipment:** Fire fighters should wear full protective clothing, including self-contained breathing equipment.

**NFPA RATINGS FOR THIS PRODUCT ARE:** Not Available.

**HMIS RATINGS FOR THIS PRODUCT ARE:** Not Available.

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures:** Wear appropriate protective equipment.

**Environmental Precautionary Measures:** Prevent entry into sewers or streams, dike if needed. Consult local authorities.

**Procedure for Clean Up:** Absorb with an inert dry material and place in an appropriate waste disposal container. Isolate hazard area and restrict access. Stop leak only if safe to do so. Prevent spilled material from entering sewers, confined spaces, drains, or waterways. Neutralize contamination area and flush with large quantities of water. Spilled material may cause floors and contact surfaces to become slippery.

#### 7. HANDLING AND STORAGE

**Handling:** Avoid contact with eyes, skin and clothing. Avoid breathing vapor. Promptly clean residue from closures with cloth dampened with water.

**Storage:** Keep containers tightly closed. Store between 0°C and 95 °C. Store in clean stainless steel or plastic containers. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers. Loading temperature 45 - 95 °C. Separate from acids, reactive metals and ammonium salts.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:**

Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit.

**Respiratory Protection:** For dusty or misty conditions, wear NIOSH-approved dust or mist respirator.

**Gloves:**

Impervious gloves.

**Skin Protection:** Apron, coveralls and/or other resistant protective clothing.

**Eyes:** Monogoggles.

**Other Personal Protection Data:** Ensure that eyewash stations and safety showers are proximal to the work-station location.

| Ingredients     | Exposure Limit - ACGIH | Exposure Limit - OSHA | Immediately Dangerous to Life or Health - IDLH |
|-----------------|------------------------|-----------------------|------------------------------------------------|
| Water           | Not available.         | Not available.        | Not Available.                                 |
| Sodium silicate | Not available.         | Not available.        | Not Available.                                 |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Thick. Liquid.  
**Colour:** Clear Hazy White.  
**Odour:** Odourless - Musty  
**pH** 11.3  
**Specific Gravity:** 1.394  
**Boiling Point:** Not Available.  
**Freezing/Melting Point:** Not Available.  
**Vapour Pressure:** Not Available.  
**Vapour Density:** Not Available.  
**% Volatile by Volume:** Not Available.  
**Evaporation Rate:** Not Available.  
**Solubility:** Miscible in water.  
**VOCs:** Not Available.  
**Viscosity:** Not Available.  
**Molecular Weight:** Not Available.

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable.  
**Hazardous Polymerization:** Will not occur.  
**Conditions to Avoid:** None known.  
**Materials to Avoid:** Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc. May react with ammonium salt solutions resulting in evolution of ammonia gas. Gels and generates heat when mixed with acid.  
**Hazardous Decomposition Products:** Hydrogen.  
**Additional Information:**  
Dries to form glass film which can easily cut skin.

## 11. TOXICOLOGICAL INFORMATION

### Principle Routes of Exposure

**Ingestion:** May cause irritation to mouth, esophagus and stomach. Causes digestive tract irritation.  
**Skin Contact:** Causes moderate skin irritation.  
**Inhalation:** Mists may cause irritation of upper respiratory tract.  
**Eye Contact:** Causes eye irritation.

**Additional Information:** Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation kidney stones and other siliceous urinary calculi in humans. When tested for primary eye irritation potential according to OECD Guidelines, Section 405, this material produced corneal, iridal and conjunctival irritation. Some eye irritation was still present 14 days after treatment, although the average primary irritation score had declined from 19.7 after 1 day to 4.0 after 14 days.  
When tested for primary skin irritation potential, this material produced irritation with a primary irritation index of 3 to abraded skin and 0 to intact skin. Human experience confirms that irritation occurs when this material gets on clothes at the collar, cuffs or other areas where abrasion may occur.  
The acute oral toxicity of this product has not been tested. When sodium silicates were tested on a 100% solids basis, their single dose acute oral LD50 in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes. This product contains approximately 37.5% sodium silicate.  
Subchronic Data: In a study of rats fed sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.

### Acute Test of Product:

**Acute Oral LD50:** Not Available.  
**Acute Dermal LD50:** Not Available.  
**Acute Inhalation LC50:** Not Available.

### Carcinogenicity:

| Ingredients     | IARC - Carcinogens | ACGIH - Carcinogens |
|-----------------|--------------------|---------------------|
| Water           | Not listed.        | Not listed.         |
| Sodium silicate | Not listed.        | Not listed.         |

**Carcinogenicity Comment:** No additional information available.

**Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity:** Not Available.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Information:**

| Ingredients     | Ecotoxicity - Fish Species Data                                                       | Acute Crustaceans Toxicity: | Ecotoxicity - Freshwater Algae Data |
|-----------------|---------------------------------------------------------------------------------------|-----------------------------|-------------------------------------|
| Water           | Not Available.                                                                        | Not Available.              | Not Available.                      |
| Sodium silicate | LC50 (Lepomis macrochirus)<br>301 - 478 mg/L<br>LC50 (Brachydanio rerio)<br>3185 mg/L | Not Available.              | Not Available.                      |

### Other Information:

The following data is reported for sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Where abnormally low natural silica concentrations exist (less than 0.1 ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic algal species. However, the addition of excess dissolved silica over the limiting concentration will not stimulate the growth of diatom populations; their growth rate is independent of silica concentration once the limiting concentration is exceeded. Neither silica nor sodium will appreciably bioconcentrate up the food chain. Sinks and dissolves in water. Only water will evaporate from this material.

## 13. DISPOSAL CONSIDERATIONS

**Disposal of Waste Method:** Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

**Contaminated Packaging:** Empty containers should be recycled or disposed of through an approved waste management facility.

## 14. TRANSPORT INFORMATION

### DOT (U.S.):

**DOT Shipping Name:** Not Regulated.

**DOT Hazardous Class:** Not Applicable.

**DOT UN Number:** Not Applicable.

**DOT Packing Group:** Not Applicable.

**DOT Reportable Quantity (lbs):** Not Available.

**Note:** No additional remark.

**Marine Pollutant:** No.

### TDG (Canada):

**TDG Proper Shipping Name:** Not Regulated.

**Hazard Class:** Not Applicable.

**UN Number:** Not Applicable.

**Packing Group:** Not Applicable.

**Note:** No additional remark.

**Marine Pollutant:** No.

## 15. REGULATORY INFORMATION

**U.S. TSCA Inventory Status:** All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

**Canadian DSL Inventory Status:** All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

**Note:** Not available.

### U.S. Regulatory Rules

| Ingredients     | CERCLA/SARA - Section 302: | SARA (311, 312) Hazard Class: | CERCLA/SARA - Section 313: |
|-----------------|----------------------------|-------------------------------|----------------------------|
| Water           | Not Listed.                | Not Listed.                   | Not Listed.                |
| Sodium silicate | Not Listed.                | Not Listed.                   | Not Listed.                |

**California Proposition 65:** Not Listed.

**MA Right to Know List:** Not Listed.

**New Jersey Right-to-Know List:** Not Listed.

**Pennsylvania Right to Know List:** Not Listed.

**WHMIS Hazardous Class:**

D2B TOXIC MATERIALS





## 16. OTHER INFORMATION

**Additional Information:**

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**Disclaimer:**

**NOTICE TO READER:**

Univar, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

**\*\*\*END OF MSDS\*\*\***

# Material Safety Data Sheet

## Sodium sulfide hydrate

ACC# 16847

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Sodium sulfide hydrate

**Catalog Numbers:** AC133720000, AC133720010, AC133720025, S426-212

**Synonyms:** None Known.

**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

| CAS#       | Chemical Name            | Percent | EINECS/ELINCS |
|------------|--------------------------|---------|---------------|
| 27610-45-3 | Sodium sulfide hydrate   | 60-63   | unlisted      |
| 7732-18-5  | Water of crystallization | 37-40   | 231-791-2     |

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: yellow flakes.

**Danger!** Causes eye and skin burns. Causes digestive and respiratory tract burns. Harmful if swallowed. Decomposed even by weak acids, evolving hydrogen sulfide, H<sub>2</sub>S, a flammable, poisonous gas with the odor of rotten eggs. Prolonged exposure may cause pulmonary edema. May cause cardiac disturbances. May cause central nervous system effects. Hygroscopic (absorbs moisture from the air). Very toxic to aquatic organisms.

**Target Organs:** Central nervous system, respiratory system, cardiovascular system, eyes, skin.

#### Potential Health Effects

**Eye:** Causes eye burns. May cause irreversible eye injury. May cause blindness. May cause chemical conjunctivitis and corneal damage.

**Skin:** Harmful if absorbed through the skin. Causes skin burns.

**Ingestion:** Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause dizziness, drowsiness, confusion, weakness, irregular breathing, and unconsciousness. Contact with stomach acids can liberate toxic hydrogen sulfide gas.

**Inhalation:** Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause systemic effects.

**Chronic:** Effects may be delayed.

### Section 4 - First Aid Measures

**Eyes:** Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** Use foam, dry chemical, or carbon dioxide.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 1

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

**Storage:** Store in a cool, dry place. Do not store in direct sunlight. Store in a tightly closed container. Keep away from strong acids. Corrosives area. Keep refrigerated. (Store below 4°C/39°F.) Store under an inert atmosphere.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use only under a chemical fume hood.

### Exposure Limits

| Chemical Name            | ACGIH       | NIOSH       | OSHA - Final PELs |
|--------------------------|-------------|-------------|-------------------|
| Sodium sulfide hydrate   | none listed | none listed | none listed       |
| Water of crystallization | none listed | none listed | none listed       |

**OSHA Vacated PELs:** Sodium sulfide hydrate: No OSHA Vacated PELs are listed for this chemical. Water of crystallization: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face

protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Flakes

**Appearance:** yellow

**Odor:** None reported.

**pH:** Not available.

**Vapor Pressure:** Not available.

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** Not available.

**Freezing/Melting Point:** Not available.

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** Not available.

**Molecular Formula:**  $\text{Na}_2\text{S} \cdot x\text{H}_2\text{O}$

**Molecular Weight:** 78.04

## Section 10 - Stability and Reactivity

**Chemical Stability:** Air sensitive. Sensitive to light. Hygroscopic: absorbs moisture or water from the air.

**Conditions to Avoid:** Incompatible materials, light, exposure to air, exposure to moist air or water.

**Incompatibilities with Other Materials:** Moisture, acids, carbon, oxidizing agents, diazonium salts, metals.

**Hazardous Decomposition Products:** Oxides of sulfur, hydrogen sulfide.

**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 27610-45-3 unlisted.

**CAS#** 7732-18-5: ZC0110000

**LD50/LC50:**

Not available.

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

.

**Carcinogenicity:**

CAS# 27610-45-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** No information found

**Neurotoxicity:** No information found

## Other Studies:

## Section 12 - Ecological Information

**Ecotoxicity:** Bacteria: *Phytobacterium phosphoreum*: EC50 = 4.29 mg/L; 15 minutes; Microtox test

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

|                         | US DOT                   | Canada TDG               |
|-------------------------|--------------------------|--------------------------|
| <b>Shipping Name:</b>   | SODIUM SULFIDE, HYDRATED | SODIUM SULFIDE HYDRATED  |
| <b>Hazard Class:</b>    | 8                        | 8                        |
| <b>UN Number:</b>       | UN1849                   | UN1849                   |
| <b>Packing Group:</b>   | II                       | II                       |
| <b>Additional Info:</b> |                          | LOAD SEPARATE FROM ACIDS |

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 27610-45-3 is not listed on the TSCA inventory. It is for research and development use only.

CAS# 7732-18-5 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### Section 313

No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 27610-45-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations****European Labeling in Accordance with EC Directives****Hazard Symbols:**

C N

**Risk Phrases:**

R 31 Contact with acids liberates toxic gas.

R 34 Causes burns.

R 50 Very toxic to aquatic organisms.

**Safety Phrases:**

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 27610-45-3: No information available.

CAS# 7732-18-5: No information available.

**Canada - DSL/NDSL**

CAS# 7732-18-5 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B6, D1B, E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

|                                     |
|-------------------------------------|
| Section 16 - Additional Information |
|-------------------------------------|

**MSDS Creation Date:** 9/02/1997

**Revision #10 Date:** 8/28/2007

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# Material Safety Data Sheet - MSDS

## Prilled Sulfur

**MARSULEX**

### Section 1. Chemical Product and Company Identification

|                             |                                                                                                                                                             |                     |                                                                                                                          |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Trade name</b>           | : Prilled Sulfur                                                                                                                                            | <b>Headquarters</b> | : Marsulex Inc.<br>111 Gordon Baker Road<br>Suite 300<br>North York, ON<br>M2H 3R1<br>(416) 496-9655<br>www.marsulex.com |
| <b>Material uses</b>        | : Manufacturing sulfuric acid, sulfur dioxide, fertilizer, carbon disulfide, plastics, enamels; vulcanizing rubber; synthesizing dyes; bleaching wood pulp. |                     |                                                                                                                          |
| <b>Validation date</b>      | : 11/15/2007                                                                                                                                                |                     |                                                                                                                          |
| <b>In case of emergency</b> | : Canada : CANUTEC 1-613-996-6666<br>US : CHEMTREC: 1-800-424-9300                                                                                          |                     |                                                                                                                          |

### Section 2. Hazards identification

|                                                        |                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical state and Appearance</b>                   | : Solid.<br><br><b>This material is classified hazardous under OSHA regulations in the United States and the WHMIS Controlled Product Regulation in Canada.</b>                                                                                                                                                                                                             |
| <b>Emergency overview</b>                              | : WARNING!<br>FLAMMABLE SOLID<br>MAY BE HARMFUL IF INHALED.<br>Keep away from heat, sparks and flame. Avoid breathing dust. Keep container closed. Use only with adequate ventilation.<br><br><b>WARNING: Material may contain hydrogen sulfide.</b>                                                                                                                        |
| <b>Routes of entry</b>                                 | : Eye contact. Inhalation. Ingestion.                                                                                                                                                                                                                                                                                                                                       |
| <b>Potential acute health effects</b>                  | :<br><b>Eyes</b> : Slightly hazardous by the following route of exposure: of eye contact (irritant).<br><b>Skin</b> : Slightly hazardous by the following route of exposure: of skin contact (irritant, sensitizer).<br><b>Inhalation</b> : Vapors and dust are irritating to the nose, throat and respiratory tract.<br><b>Ingestion</b> : Ingestion may cause irritation. |
| <b>Potential chronic health effects</b>                | : CARCINOGENIC EFFECTS: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.<br>MUTAGENIC EFFECTS: Not available.<br>TERATOGENIC EFFECTS: Not available.                                                                                                                                                                                                              |
| <b>Medical conditions aggravated by over-exposure</b>  | : Repeated exposure may cause chronic bronchitis.                                                                                                                                                                                                                                                                                                                           |
| <b>Over-exposure signs/symptoms</b>                    | : Breathing of dust may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.                                                                                                                                                                                                                                                   |
| <a href="#">See Section 11 for Toxicological Data.</a> |                                                                                                                                                                                                                                                                                                                                                                             |

### Section 3. Composition/information on ingredients

| Name             | CAS #     | % by weight |
|------------------|-----------|-------------|
| Sulfur           | 7704-34-9 | >99.0       |
| Hydrogen Sulfide | 7783-06-4 | < 1%        |

See Section 8 for Exposure Limits.  
See Section 11 for Toxicological Data.

Continued on next page

## Section 4. First Aid Measures

- Eye contact** : Immediately flush eyes with running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention if irritation persists.
- Skin contact** : Flush skin with lukewarm running water for a minimum of 5 minutes or until the chemical is removed. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention if irritation remains.
- Inhalation** : Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) only if there is no pulse AND no breathing. Obtain medical attention IMMEDIATELY.
- Ingestion** : DO NOT INDUCE VOMITING. If victim is alert and not convulsing, rinse mouth and give ½ to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY contact local poison control centre. Vomiting may need to be induced but should be directed by a physician or a poison control center. IMMEDIATELY transport victim to an emergency facility.
- Notes to physician** : All treatments should be based on observed signs and symptoms of distress in the patient.

## Section 5. Fire Fighting Measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 232°C (449.6°F)
- Flash points** : Closed cup: 207°C (404.6°F).
- Flammable limits** : LOWER: 35 g/m<sup>3</sup> UPPER: 1400 g/m<sup>3</sup>
- Products of combustion** : Decomposition products may include the following materials: sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub> etc.).
- Fire hazards in the presence of various substances** : Oxidizing material.
- Explosion hazards in the presence of various substances** : Easily ignitable, combustible solid. Dust suspended in air ignites easily and can cause an explosion. Hazardous in contact with oxidizing materials, forming explosive mixtures. Sulfur burns with a pale blue flame that may be difficult to see in daylight.
- Fire-fighting media and instructions** : SMALL FIRE: Use dry chemical powder.  
LARGE FIRE: Use water spray or fog. Cool containers with water jet in order to prevent pressure build-up, auto-ignition or explosion. If tank, rail car or tank truck is involved in a fire, ISOLATE and consider initial evacuation for 800 meters (1/2 mile) in all directions.
- Protective clothing (fire)** : Wear self-contained breathing apparatus and full protective clothing. Avoid straight streams of water, which can scatter dust. Small fires can be extinguished with sand. Fire will rekindle until mass is cooled below 154°C (310°F).

## Section 6. Accidental Release Measures

- Small spill and leak** : With clean shovel place material into clean, dry container and cover loosely. Move containers from spill area.
- Large spill and leak** : Stop discharge and contain if safe to do so. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Do not allow material to enter water sources or sewers. Shovel solid sulfur into containers with covers (avoid dusting) for recovery or disposal. If removal is not immediate, apply a cover material, preferably inert and basic (limestone), to the spilled area until recovery procedures begin. This will reduce the possible release of sulfuric acid in the water. Collect product and contaminated soil and water for recovery or disposal. Consider initial downwind evacuation for at least 100 meters (330 feet).

## Section 7. Handling and Storage

- Handling** : Keep away from heat, sparks and flame. To avoid fire, eliminate ignition sources.
- Storage** : Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Continued on next page



## Section 8. Exposure Controls, Personal Protection

**Engineering controls** : Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal protection

**Eyes** : Safety glasses.

**Body** : Lab coat or overalls.

**Respiratory** : NIOSH/MSHA approved dust mask, for dust concentrations of up to 50 mg/m<sup>3</sup>. Air-purifying half-mask or full-face piece respirator equipped with dust cartridges for concentrations up to 100 mg/m<sup>3</sup>. An air-supplied respirator if concentrations are higher or unknown.

**If Hydrogen sulfide is present at a higher level than the acceptable exposure limit, please refer to the Hydrogen sulfide MSDS for appropriate information and suggested protective clothing. A gas mask with canister to protect against hydrogen sulfide; or escape-type SCBA may become necessary.**

**Hands** : Gloves, neoprene, PVC, vinyl or rubber.

**Feet** : Appropriate industrial footwear.

### Protective clothing (pictograms)



**Personal protection in case of a large spill** : Splash goggles. Full suit. Dust respirator. Boots. Gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

### Exposure limits

#### Product name

Particulates Not Otherwise Specified

#### Exposure limits

##### **ACGIH (TLV)**

10 mg/m<sup>3</sup> (inhalable)

##### **OSHA (PEL)**

15 mg/m<sup>3</sup> (total) TWA-8hrs

##### **ACGIH TLV (United States). Notes: Inhalable fraction.**

TWA: 10 mg/m<sup>3</sup> 8 hour(s). Form: Nuisance dust.

##### **OSHA PEL (United States). Notes: Total**

TWA: 15 mg/m<sup>3</sup> 8 hour(s). Form: Nuisance dust.

##### **ACGIH TLV**

STEL: 21 mg/m<sup>3</sup> 15 minute(s).

STEL: 15 ppm 15 minute(s).

TWA: 14 mg/m<sup>3</sup> 8 hour(s).

TWA: 10 ppm 8 hour(s).

##### **NIOSH REL**

CEIL: 15 mg/m<sup>3</sup> 10 minute(s).

CEIL: 10 ppm 10 minute(s).

##### **OSHA PEL Z2**

AMP: 50 ppm 10 minute(s).

CEIL: 20 ppm

Sulfur

Hydrogen Sulfide

[Consult local authorities for acceptable exposure limits.](#)

## Section 9. Physical and Chemical Properties

**Physical state and Appearance** : Solid.

**Color** : Yellow.

**Odor** : Rotten eggs. (Possibly strong.)

**Molecular weight** : 256.5 g/mole

**Molecular formula** : S<sub>8</sub>

**pH** : Not applicable.

**Boiling/condensation point** : 444.65°C (832.4°F)

Continued on next page

|                        |                                                                                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Melting/freezing point | : 114 to 119°C (237.2 to 246.2°F)                                                                                                                                                       |
| Specific gravity       | : 1.8 (Water = 1)                                                                                                                                                                       |
| Vapor pressure         | : 0.01 kPa (0.1 mm Hg) (at 20°C)                                                                                                                                                        |
| Vapor density          | : Not applicable.                                                                                                                                                                       |
| Odor threshold         | : Not available.                                                                                                                                                                        |
| Evaporation rate       | : Not available.                                                                                                                                                                        |
| LogK <sub>ow</sub>     | : Not available.                                                                                                                                                                        |
| Solubility             | : Insoluble in the following materials: cold water, hot water. Soluble in carbon disulfide, benzene, toluene, chloroform, ether, warm aniline, carbon tetrachloride and liquid ammonia. |

## Section 10. Stability and Reactivity

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stability and reactivity                | : The product is stable.                                                                                                                                                                                                                                                                                                                                                                                          |
| Incompatibility with various substances | : Alkalis and oxidizing agents such as chlorine and fluorine. May react explosively with ammonia, ammonium nitrate, chlorine dioxide (bromates, chlorates, and iodates of barium, calcium, magnesium, potassium, sodium or zinc), (chlorate in presence of copper), chromic anhydride, silver bromate, lead dioxide, mercuric nitrate, all inorganic perchlorates, phosphorus trioxide, sodium nitrate, and zinc. |
| Hazardous decomposition products        | : Produces oxides of sulfur on combustion.                                                                                                                                                                                                                                                                                                                                                                        |
| Hazardous polymerization                | : Will not occur.                                                                                                                                                                                                                                                                                                                                                                                                 |

## Section 11. Toxicological Information

### Toxicity data

| <u>Ingredient name</u> | <u>Test</u> | <u>Result</u>       | <u>Route</u> | <u>Species</u> |
|------------------------|-------------|---------------------|--------------|----------------|
| Sulfur                 | LD50        | >8437 mg/kg         | Oral         | Rat            |
| Hydrogen Sulfide       | LC50        | 444 ppm (4 hour(s)) | Inhalation   | Rat            |
|                        | LC50        | 673 ppm (1 hour(s)) | Inhalation   | Mouse          |

|                               |                                                                                                                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chronic effects on humans     | : See Section 2.                                                                                                                                                                                          |
| Other toxic effects on humans | : Hazardous by the following route of exposure: of inhalation.<br>Slightly hazardous by the following route of exposure: of skin contact (irritant, sensitizer), of eye contact (irritant), of ingestion. |
| Target organs                 | : Not available.                                                                                                                                                                                          |

## Section 12. Ecological Information

### Ecotoxicity data

| <u>Ingredient name</u> | <u>Species</u>             | <u>Period</u> | <u>Result</u> |
|------------------------|----------------------------|---------------|---------------|
| Sulfur                 | Daphnia magna (EC50)       | 48 hour(s)    | >5000 mg/l    |
|                        | Lepomis macrochirus (LC50) | 96 hour(s)    | <14 mg/l      |
|                        | Lepomis macrochirus (LC50) | 96 hour(s)    | >180 mg/l     |
|                        | Oncorhynchus mykiss (LC50) | 96 hour(s)    | >180 mg/l     |
| Hydrogen Sulfide       | Pimephales promelas (LC50) | 96 hour(s)    | 0.007 mg/l    |
|                        | Oncorhynchus mykiss (LC50) | 96 hour(s)    | 0.007 mg/l    |
|                        | Pimephales promelas (LC50) | 96 hour(s)    | 0.0071 mg/l   |
|                        | Lepomis macrochirus (LC50) | 96 hour(s)    | 0.009 mg/l    |
|                        | Pimephales promelas (LC50) | 96 hour(s)    | 0.0107 mg/l   |
|                        | Oncorhynchus mykiss (LC50) | 96 hour(s)    | 0.012 mg/l    |

|                                            |                                                                                                                       |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Products of degradation                    | : Decomposition products may include the following materials: sulfur oxides (SO <sub>2</sub> , SO <sub>3</sub> etc.). |
| Toxicity of the products of biodegradation | : The products of degradation are toxic.                                                                              |

## Section 13. Disposal Considerations

**Waste information** : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

[Consult your local or regional authorities.](#)

## Section 14. Transport Information

**Canada (TDG)** : UN1350, SULFUR, 4.1, PG III

**United States (DOT)** : UN1350, SULFUR, 4.1, PG III

**ERG** : 133

## Section 15. Regulatory Information

**WHMIS (Canada)** : Class B-4: Flammable solid.  
Class D-2B: Material causing other toxic effects (Toxic).  
**Canada inventory:** This material is listed or exempted.  
**CEPA Toxic substances:** This material is not listed.  
**Canadian ARET:** This material is not listed.  
**Canadian NPRI:** This material is not listed.  
**Alberta Designated Substances:** This material is not listed.  
**Ontario Designated Substances:** This material is not listed.  
**Quebec Designated Substances:** This material is not listed.  
  
**This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.**

**HCS Classification** : Flammable solid  
Irritating material

**U.S. Federal Regulations** : **United States inventory (TSCA 8b):** This material is listed or exempted.  
**SARA 302/304/311/312 extremely hazardous substances:** No products were found.  
**SARA 302/304 emergency planning and notification:** No products were found.  
**SARA 302/304/311/312 hazardous chemicals:** Sulfur  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** Sulfur: Fire hazard

**State Regulations** : **Connecticut Carcinogen Reporting:** This material is not listed.  
**Connecticut Hazardous Material Survey:** This material is not listed.  
**Florida substances:** This material is not listed.  
**Illinois Chemical Safety Act:** This material is not listed.  
**Illinois Toxic Substances Disclosure to Employee Act:** This material is not listed.  
**Louisiana Reporting:** This material is not listed.  
**Louisiana Spill:** This material is not listed.  
**Massachusetts Spill:** This material is not listed.  
**Massachusetts Substances:** This material is listed.  
**Michigan Critical Material:** This material is not listed.  
**Minnesota Hazardous Substances:** This material is not listed.  
**New Jersey Hazardous Substances:** This material is listed.  
**New Jersey Spill:** This material is not listed.  
**New Jersey Toxic Catastrophe Prevention Act:** This material is not listed.  
**New York Acutely Hazardous Substances:** This material is not listed.  
**New York Toxic Chemical Release Reporting:** This material is not listed.  
**Pennsylvania RTK Hazardous Substances:** This material is listed.  
**Rhode Island Hazardous Substances:** This material is not listed.

### California Prop. 65

No products were found.

Continued on next page

## Section 16. Other Information

### Hazardous Material Information System (U.S.A.)

|                     |   |
|---------------------|---|
| Health              | 2 |
| Fire hazard         | 1 |
| Physical Hazard     | 0 |
| Personal protection | G |

### National Fire Protection Association (U.S.A.)



### References

- : - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. ANSI Z400.1, MSDS Standard, 2004. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List"
- Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. - Manufacturer's Material Safety Data Sheet.

### Responsible name

: Atrion Regulatory Services, Inc.

### Date of issue

: 11/15/2007

### Date of previous issue

: 09/30/2006

### Version

: 4

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

# Material Safety Data Sheet - MSDS

## Sulfuric Acid, 70-100%

**MARSULEX**



### Section 1. Chemical Product and Company Identification

|                             |                                                                                                                  |                     |                                                                                                                          |
|-----------------------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Trade name</b>           | : Sulfuric Acid, 70-100%                                                                                         | <b>Headquarters</b> | : Marsulex Inc.<br>111 Gordon Baker Road<br>Suite 300<br>North York, ON<br>M2H 3R1<br>(416) 496-9655<br>www.marsulex.com |
| <b>Material uses</b>        | : Water treatment, metal pickling, petroleum processing. Manufacture of fertilizers, explosives and other acids. |                     |                                                                                                                          |
| <b>Validation date</b>      | : 10/30/2007                                                                                                     |                     |                                                                                                                          |
| <b>In case of emergency</b> | : Canada : CANUTEC 1-613-996-6666<br>US : CHEMTREC: 1-800-424-9300                                               |                     |                                                                                                                          |

### Section 2. Hazards identification

|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                 |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical state and Appearance</b>                   | : Liquid. (Oily liquid.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>This material is classified hazardous under OSHA regulations in the United States and the WHMIS Controlled Product Regulation in Canada.</b> |
| <b>Emergency overview</b>                              | : DANGER!<br>MAY BE FATAL IF INHALED.<br>CAUSES SEVERE RESPIRATORY TRACT BURNS.<br>CAUSES EYE AND SKIN BURNS.<br>HARMFUL IF SWALLOWED.<br>Risk of cancer depends on duration and level of exposure to the sulfuric acid mist. Do not get in eyes, on skin or on clothing. Do not ingest. Do not breathe mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                 |
| <b>Routes of entry</b>                                 | : Dermal contact. Eye contact. Inhalation. Ingestion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                 |
| <b>Potential acute health effects</b>                  | <b>Eyes</b> : Very hazardous by the following route of exposure: of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching. Immediate pain, severe burns and corneal damage, which may result in permanent blindness.<br><b>Skin</b> : Very hazardous by the following route of exposure: of skin contact (corrosive, irritant). Non-sensitizer to skin. Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.<br><b>Inhalation</b> : Inhalation of the mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Over-exposure by inhalation may cause respiratory irritation. May be fatal if inhaled.<br><b>Ingestion</b> : Very hazardous by the following route of exposure: of ingestion. May be fatal if swallowed. May cause burns to mouth, throat and stomach. |                                                                                                                                                 |
| <b>Potential chronic health effects</b>                | : CARCINOGENIC EFFECTS: Sulfuric acid mist: Classified 1 (Proven for humans.) by IARC, 1 (Known to be human carcinogens.) by NTP. Sulfuric acid mist: Classified A2 (Suspected for humans.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                 |
| <b>Medical conditions aggravated by over-exposure</b>  | : Repeated or prolonged contact with mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                 |
| <b>Over-exposure signs/symptoms</b>                    | : Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                 |
| <a href="#">See Section 11 for Toxicological Data.</a> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                 |

Continued on next page

### Section 3. Composition/information on ingredients

| Name          | CAS #     | % by weight |
|---------------|-----------|-------------|
| Sulfuric Acid | 7664-93-9 | 70-100      |

See Section 8 for Exposure Limits.  
See Section 11 for Toxicological Data.

### Section 4. First Aid Measures

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>        | : Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Skin contact</b>       | : Immediately flush skin with running water for a minimum of 20 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport. While the patient is being transported to a medical facility, apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water. Do not apply ointments unless directed by a physician. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues. Discard heavily contaminated clothing and shoes in a manner that limits further exposure. Otherwise, wash clothing separately before reuse. |
| <b>Inhalation</b>         | : Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim ingested or inhaled the substance: give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Give Cardiopulmonary Resuscitation (CPR) if there is no pulse AND no breathing. Obtain medical attention IMMEDIATELY.                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Ingestion</b>          | : DO NOT INDUCE VOMITING. If victim is alert and not convulsing, rinse mouth and give ½ to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY contact local poison control center. Vomiting may need to be induced but should be directed by a physician or a poison control center. IMMEDIATELY transport victim to an emergency facility.                                                                                                                                                                                                                                                                                                                              |
| <b>Notes to physician</b> | : This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur.                                                                                                                                                                                                                                                                                          |

### Section 5. Fire Fighting Measures

|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flammability of the product</b>                             | : Non-flammable.                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Auto-ignition temperature</b>                               | : Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Flash points</b>                                            | : Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Flammable limits</b>                                        | : Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Products of combustion</b>                                  | : Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Fire hazards in the presence of various substances</b>      | : Not flammable but highly reactive. Strong dehydrating agent, which may cause ignition of finely divided combustible materials on contact.                                                                                                                                                                                                                                                                          |
| <b>Explosion hazards in the presence of various substances</b> | : Reacts violently with water with the evolution of heat. It can react explosively with organic materials (See Section 10). Reacts with many metals to liberate hydrogen gas that can form explosive mixtures with air. Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any types of steel containers or tanks upon storage. Oxides of sulfur may be produced in fire. |
| <b>Fire-fighting media and instructions</b>                    | : Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Protective clothing (fire)</b>                              | : Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                    |

Continued on next page

## Section 6. Accidental Release Measures

- Small spill and leak** : Cover with DRY earth, sand or other non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
- Large spill and leak** : Restrict access to area until completion of clean up. Ensure trained personnel conduct clean up. Remove all ignition sources (no smoking, flares, sparks or flames). All equipment should be grounded. Ventilate area. Use appropriate Personal Protection Equipment. Prevent liquid from entering sewers or waterways. Stop or reduce leak if safe to do so. Dike with inert material (sand, earth, etc.). Collect into plastic containers for disposal. Consider in situ neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases.

## Section 7. Handling and Storage

- Handling** : Do not ingest. Do not breathe mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Use **EXTREME** care when diluting with water. **Always add acid to water.** CAUTION: Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or inside most types of metal containers or tanks upon storage. **Carbon steel storage tanks must be vented.**
- Storage** : If stored in nonreactive container keep container tightly closed. Metal and, specifically, carbon steel, storage tanks must be vented due to hydrogen release as noted above.

## Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal protection

- Eyes** : Splash goggles. Face shield.
- Body** : Full suit, coveralls and/or other acid resistant protective clothing.
- Respiratory** : A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, dust, mist cartridges for concentrations up to 10 mg/m<sup>3</sup>. An air-supplied respirator if concentrations are higher or unknown.
- Hands** : RECOMMENDED: Impervious (i.e., neoprene, PVC) gloves.
- Feet** : Boots.

### Protective clothing (pictograms)



- Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

### Exposure limits

**Product name**  
Sulfuric Acid

### Exposure limits

**ACGIH TLV (United States, 1/2006).**

TWA: 0.2 mg/m<sup>3</sup> 8 hour(s).

**NIOSH REL (United States, 12/2001).**

TWA: 1 mg/m<sup>3</sup> 10 hour(s).

**OSHA PEL (United States, 11/2006).**

TWA: 1 mg/m<sup>3</sup> 8 hour(s).

[Consult local authorities for acceptable exposure limits.](#)

Continued on next page



## Section 9. Physical and Chemical Properties

|                                      |                                                    |
|--------------------------------------|----------------------------------------------------|
| <b>Physical state and Appearance</b> | : Liquid. (Oily liquid.)                           |
| <b>Color</b>                         | : Clear. Amber. (Light.)                           |
| <b>Odor</b>                          | : Odorless.                                        |
| <b>Molecular weight</b>              | : 98.08 g/mole                                     |
| <b>Molecular formula</b>             | : H <sub>2</sub> SO <sub>4</sub>                   |
| <b>pH</b>                            | : 0.3 [Acidic.]                                    |
| <b>Boiling/condensation point</b>    | : 150 to 330°C (302 to 626°F)                      |
| <b>Melting/freezing point</b>        | : -40 to -1.1°C (-40 to 30°F)                      |
| <b>Specific gravity</b>              | : 1.7059 to 1.8437 (Water = 1)                     |
| <b>Vapor pressure</b>                | : 0.2 to 0.0003 kPa (1.2 to 0.002 mm Hg) (at 20°C) |
| <b>Vapor density</b>                 | : 3.4 (Air = 1)                                    |
| <b>Odor threshold</b>                | : Not available.                                   |
| <b>Evaporation rate</b>              | : Not available.                                   |
| <b>LogK<sub>ow</sub></b>             | : Not available.                                   |
| <b>Solubility</b>                    | : Miscible in water.                               |

## Section 10. Stability and Reactivity

|                                                |                                                                                                                                               |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stability and reactivity</b>                | : The product is stable.                                                                                                                      |
| <b>Incompatibility with various substances</b> | : Reactive with reducing agents, organic materials, alkalis, moisture.                                                                        |
| <b>Hazardous decomposition products</b>        | : Toxic gases and vapors (e.g. sulfur dioxide, sulfuric acid vapors/mists and sulfur trioxide) may be released when sulfuric acid decomposes. |
| <b>Hazardous polymerization</b>                | : Will not occur.                                                                                                                             |

## Section 11. Toxicological Information

### Toxicity data

| <u>Ingredient name</u> | <u>Test</u> | <u>Result</u>                     | <u>Route</u> | <u>Species</u> |
|------------------------|-------------|-----------------------------------|--------------|----------------|
| Sulfuric Acid          | LD50        | 2140 mg/kg                        | Oral         | Rat            |
|                        | LC50        | 510 mg/m <sup>3</sup> (2 hour(s)) | Inhalation   | Rat            |

**Chronic effects on humans** : See Section 2.

**Other toxic effects on humans** : Extremely hazardous by the following route of exposure: of inhalation (lung corrosive).  
Very hazardous by the following route of exposure: of skin contact (corrosive, irritant), of eye contact (irritant, corrosive), of ingestion.  
Non-sensitizer to skin.

**Target organs** : Causes damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eye, lens or cornea, teeth.

## Section 12. Ecological Information

### Ecotoxicity data

| <u>Ingredient name</u> | <u>Species</u>        | <u>Period</u> | <u>Result</u> |
|------------------------|-----------------------|---------------|---------------|
| Sulfuric Acid          | Rainbow trout. (LC50) | 96 hour(s)    | 0.0028 mg/l   |

**Products of degradation** : Decomposition products may include the following materials: sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub> etc.).

**Toxicity of the products of biodegradation** : The products of biodegradation are more toxic than the original product.

Continued on next page



## Section 13. Disposal Considerations

**Waste information** : Waste must be disposed of in accordance with federal, state and local environmental control regulations. Recycle, if possible. Prevent entry into sewers, water courses, basements or confined areas.

[Consult your local or regional authorities.](#)

## Section 14. Transport Information

**Canada (TDG)** : RQ, UN1830, SULFURIC ACID, 8, PG II.

**United States (DOT)** : RQ, UN1830, SULFURIC ACID, 8, PG II.

**ERG** : 137

## Section 15. Regulatory Information

**WHMIS (Canada)** : Class D-1A: Material causing immediate and serious toxic effects (Very toxic).  
Class D-2A: Material causing other toxic effects (Very toxic).  
Class E: Corrosive liquid.

**Canada inventory:** This material is listed or exempted.

**CEPA Toxic substances:** This material is not listed.

**Canadian ARET:** This material is not listed.

**Canadian NPRI:** This material is listed.

**Alberta Designated Substances:** This material is not listed.

**Ontario Designated Substances:** This material is not listed.

**Quebec Designated Substances:** This material is not listed.

**This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.**

**HCS Classification** : Toxic material  
Corrosive material  
Target organ effects

**U.S. Federal Regulations** : **United States inventory (TSCA 8b):** This material is listed or exempted.  
**SARA 302/304/311/312 extremely hazardous substances:** Sulfuric acid  
**SARA 302/304 emergency planning and notification:** Sulfuric acid  
**SARA 302/304/311/312 hazardous chemicals:** Sulfuric acid  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** Sulfuric acid: reactive, Immediate (acute) health hazard, Delayed (chronic) health hazard  
**Clean Water Act (CWA) 311:** Sulfuric acid

### SARA 313

#### Form R - Reporting requirements

| Ingredient name | % by weight |
|-----------------|-------------|
| Sulfuric acid   | 70-100      |

#### Supplier notification

|               |        |
|---------------|--------|
| Sulfuric acid | 70-100 |
|---------------|--------|

### State Regulations

**Connecticut Carcinogen Reporting:** This material is not listed.  
**Connecticut Hazardous Material Survey:** This material is not listed.  
**Florida substances:** This material is not listed.  
**Illinois Chemical Safety Act:** This material is not listed.  
**Illinois Toxic Substances Disclosure to Employee Act:** This material is not listed.  
**Louisiana Reporting:** This material is not listed.  
**Louisiana Spill:** This material is not listed.  
**Massachusetts Spill:** This material is not listed.  
**Massachusetts Substances:** This material is listed.  
**Michigan Critical Material:** This material is not listed.  
**Minnesota Hazardous Substances:** This material is not listed.  
**New Jersey Hazardous Substances:** This material is listed.  
**New Jersey Spill:** This material is not listed.  
**New Jersey Toxic Catastrophe Prevention Act:** This material is not listed.  
**New York Acutely Hazardous Substances:** This material is listed.  
**New York Toxic Chemical Release Reporting:** This material is not listed.

Continued on next page

**Pennsylvania RTK Hazardous Substances:** This material is listed.

**Rhode Island Hazardous Substances:** This material is not listed.

**California Prop. 65**

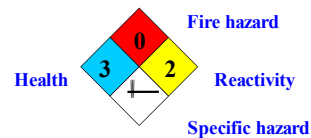
No products were found.

## Section 16. Other Information

**Hazardous Material  
Information System  
(U.S.A.)**

|                     |   |   |
|---------------------|---|---|
| Health              | * | 3 |
| Fire hazard         |   | 0 |
| Physical Hazard     |   | 2 |
| Personal protection |   | D |

**National Fire  
Protection  
Association  
(U.S.A.)**



**References**

: - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Manufacturer's Material Safety Data Sheet.

**Responsible name**

: Atrion Regulatory Services, Inc.

**Date of issue**

: 10/30/2007

**Date of previous issue**

: 09/30/2006

**Version**

: 3

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



# MATERIAL SAFETY DATA SHEET

Revision: 1.0

06/06/2002

Page: 1 of 9

Product name: WITCOMUL 3241

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name:** WITCOMUL 3241

**Chemical name:** Alkyl polyamide

**Supplier:** AKZO NOBEL SURFACE CHEMISTRY LLC  
525 West Van Buren Street  
Chicago, IL 60607-3823, USA

**Emergency telephone number:** Akzo Nobel Emergency Response (24 hours) 914-693-6946  
CHEMTREC (24 hours) 800-424-9300

**For MSDS, Product Safety, or regulatory inquiries, call:** Customer Service: 800-906-9977

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

| COMPONENT                         | CAS#         | CONCENTRATION |
|-----------------------------------|--------------|---------------|
| Alkyl polyamide                   | Trade secret | 68.0 %        |
| Diesel                            | 68334-30-5   | 28.0 %        |
| Ethylene glycol monobutyl ether   | 111-76-2     | 2.0 %         |
| Diethylene glycol monobutyl ether | 112-34-5     | 2.0 %         |

## 3. HAZARDS IDENTIFICATION

### APPEARANCE

**Physical state** Liquid  
**Color** Amber  
**Odor** Solvent

**Product name: WITCOMUL 3241**

---

## **EMERGENCY OVERVIEW**

### **CAUTION!**

COMBUSTIBLE LIQUID

CAUSES EYE IRRITATION.  
MAY BE HARMFUL IF SWALLOWED.

## **POTENTIAL HEALTH EFFECTS**

### **Swallowing**

#### **Acute effects**

May be harmful if swallowed.

### **Skin absorption**

#### **Acute effects**

Harmful effects are not expected from short periods of contact.

### **Inhalation**

#### **Acute effects**

Vapor may cause irritation.

### **Skin contact**

#### **Acute effects**

Brief contact is not expected to produce irritation.

### **Eye contact**

#### **Acute effects**

Causes irritation.

## **POTENTIAL ENVIRONMENTAL EFFECTS**

No information available.

---

## **4. FIRST AID MEASURES**

---

### **Swallowing**

Do not induce vomiting. If a large quantity (50 ml or more) has been swallowed, and if patient is fully conscious, give two glasses of water. Obtain medical attention immediately.

### **Skin**

Immediately flush skin thoroughly with water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention if irritation persists.

### **Inhalation**

Remove to fresh air. Give artificial respiration if not breathing. Obtain medical attention.

**Product name: WITCOMUL 3241**

---

**Eye contact**

Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention.

---

## **5. FIRE-FIGHTING MEASURES**

---

**Flash point:** 65 °C (149 °F)

**Special protective equipment for firefighters**

Self-contained breathing apparatus with full face-piece operated in positive pressure mode.

**Extinguishing media**

Suitable: Extinguish with:

- water fog
- dry chemical
- CO<sub>2</sub>
- alcohol resistant foam

---

## **6. ACCIDENTAL RELEASE MEASURES**

---

**Personal precautions**

Wear suitable protective equipment.

**Environmental precautions**

Insoluble in water. Dike area of spill to prevent spreading and pump liquid to salvage tank. Prevent from entering sewers or drains. Should this product enter sewers or drains, it should be pumped out into an open vessel. Emergency services may need to be called to assist in this operation.

**Methods for cleaning up**

Eliminate sources of ignition.

Evacuate unnecessary personnel.

Absorb on inert material such as sand, earth, vermiculite.

This product is insoluble in water and will float on the surface.

If feasible skim or vacuum product from the surface of the water.

Report per regulatory requirements.

---

## **7. HANDLING AND STORAGE**

---

### **HANDLING**

**Handling precautions**

Do not get in eyes, on skin, on clothing. Eliminate all sources of ignition. Use with adequate ventilation. Keep

**Product name: WITCOMUL 3241**

---

drums tightly closed to prevent contamination. Wear recommended personal protection equipment. Never use pressure to empty drums.

**STORAGE****Storage requirements**

Combustible. Keep away from heat, sparks and flame. Store and use with adequate ventilation. Store at ambient temperature.

---

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

---

**PERSONAL PROTECTION****Respiratory protection**

If personnel exposure exceeds the exposure limits, select appropriate protective equipment in accordance with NIOSH recommendations.

**Hand protection / protective gloves**

Neoprene

**Eye protection**

Splash-proof goggles

**Skin protection**

Rubber or plastic apron

**Industrial hygiene measures**

Remove contaminated clothing and clean it.

**ENGINEERING CONTROLS****Ventilation**

General (mechanical) room ventilation is expected to be satisfactory for normal handling.

**EXPOSURE LIMITS**

| <u>Component</u>                   | <u>Type</u>       | <u>Value</u>                        | <u>Remark</u> |
|------------------------------------|-------------------|-------------------------------------|---------------|
| Ethylene glycol<br>monobutyl ether | TWA (skin), OSHA  | 120.0 mg/m <sup>3</sup><br>25.0 ppm |               |
|                                    | TWA (skin), ACGIH | 20.0 ppm                            |               |

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

---

**APPEARANCE**

**Product name: WITCOMUL 3241**

---

|                       |         |
|-----------------------|---------|
| <b>Physical state</b> | Liquid  |
| <b>Color</b>          | Amber   |
| <b>Odor</b>           | Solvent |

## **OTHER PROPERTIES**

|                              |                                                               |
|------------------------------|---------------------------------------------------------------|
| <b>Boiling point</b>         | Not determined                                                |
| <b>Melting point</b>         | Not determined                                                |
| <b>pH</b>                    | 4 - 5<br>Concentration:<br>50 g/l                             |
| <b>Density</b>               | 0.92 g/cm <sup>3</sup> at 25 °C                               |
| <b>Vapor pressure</b>        | Not determined                                                |
| <b>Vapor density (air=1)</b> | Not determined                                                |
| <b>Solubility in water</b>   | Insoluble                                                     |
| <b>Flash point</b>           | 65 °C (149 °F)<br>Method: Pensky-Martens closed cup ASTM D 93 |
| <b>Percent volatiles</b>     | 32 %(m)                                                       |

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## **10. STABILITY AND REACTIVITY**

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**Stability:** Stable.

**Stability - Conditions to avoid**

Stable under normal conditions.

**Incompatible materials**

Strong oxidizing agents.

**Hazardous combustion products**

Carbon monoxide.

Carbon dioxide.

Oxides of nitrogen.

**Hazardous polymerization:** Will not occur.

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## **11. TOXICOLOGICAL INFORMATION**

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**Product name: WITCOMUL 3241**

|                                                                                                              |                                              |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <u>Component toxicology</u><br><b>Diesel</b><br>Acute toxicity - Swallowing:                                 | LD50 - Rats<br>Result: 12,000 - 15,700 mg/kg |
| <u>Component toxicology</u><br><b>Ethylene glycol monobutyl ether</b><br>Acute toxicity - Swallowing:        | LD50 - Rats<br>Result: 500 - 3,000 mg/kg     |
| <u>Component toxicology</u><br><b>Diethylene glycol monobutyl ether</b><br>Acute toxicity - Swallowing:      | LD50 - Rats<br>Result: 6,560 mg/kg           |
| <u>Component toxicology</u><br><b>Diethylene glycol monobutyl ether</b><br>Acute toxicity - Swallowing:      | LD50 - Guinea pig:<br>Result: 2,000 mg/kg    |
| <u>Component toxicology</u><br><b>Diethylene glycol monobutyl ether</b><br>Acute toxicity - Skin absorption: | LD50 - Rabbit<br>Result: 4,120 mg/kg         |
| <u>Component toxicology</u><br><b>Ethylene glycol monobutyl ether</b><br>Acute toxicity - Inhalation:        | LC50 - Rats<br>Result: 450 ppm               |
| <u>Component toxicology</u><br><b>Diethylene glycol monobutyl ether</b><br>Eye irritation - Eye contact:     | Species: Rabbit<br>Result: Severe irritation |

## 12. ECOLOGICAL INFORMATION

No information available.

|                                                                                |                                                                               |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <u>Component ecotoxicology</u><br><b>Diesel</b><br><u>Acute toxicity fish:</u> | Acute toxicity fish - - Bluegill<br>Result: 135 ppm<br>Exposure time: 96 h    |
| <u>Component ecotoxicology</u><br><b>Diesel</b><br><u>Acute toxicity fish:</u> | Acute toxicity fish - - White Perch<br>Result: 1.4 ppm<br>Exposure time: 96 h |
| <u>Component ecotoxicology</u><br><b>Diesel</b><br><u>Acute toxicity fish:</u> | Salt water - - Grass Shrimp<br>Result: 2 ppm<br>Exposure time: 96 h           |





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## 13. DISPOSAL CONSIDERATIONS

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**General:** Incinerate in a furnace where permitted under appropriate Federal, State, and local regulations.

**Non-cleaned packages**

Dispose of washing solution in the same way as product.

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## 14. TRANSPORT INFORMATION

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### DOT Classification

Not regulated by ground or rail if shipped or transported in containers less than 450 liters.

|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| <b>Proper shipping name:</b>     | COMBUSTIBLE LIQUID, N.O.S. (DIESEL, BUTYL CELLOSOLVE) |
| <b>Class:</b>                    | COMBUSTIBLE LIQUID                                    |
| <b>UN ID #:</b>                  | NA 1993                                               |
| <b>Packing group:</b>            | III                                                   |
| <b>Freight description road:</b> | OIL WELL DRILLING/MUD TREATING COMPOUND               |

### IMDG Classification

This product is not regulated by IMDG.

### ICAO Classification

This product is not regulated by ICAO.

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## 15. REGULATORY INFORMATION

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**Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of hazardous substances equal to or greater than the reportable quantities (RQ's) in 40CFR302.4.**

Components present in this product at a level which could require reporting under the statute are:

\*\*\*\* NONE \*\*\*\*

**Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40CFR355 (used for SARA 302 and 304).**

Components present in this product at a level which could require reporting under the statute are:

None.

**Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual**



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**reports of release of toxic chemicals that appear in 40CFR372 (for SARA 313). This information must be included in MSDS's that are copied and distributed for this material.**

Components present in this product at a level which could require reporting under the statute are:

| Chemical name                     | CAS#     | Max weight % |
|-----------------------------------|----------|--------------|
| Ethylene glycol monobutyl ether   | 111-76-2 | 2.00         |
| Diethylene glycol monobutyl ether | 112-34-5 | 2.00         |

**Pennsylvania Right-To-Know Hazardous Substance List--Hazardous Substances and Special Hazardous Substances on the list must be identified when present in products.**

Components present in this product at a level which could require reporting under the statute are:

| Chemical name                     | CAS#     | Max weight % |
|-----------------------------------|----------|--------------|
| Ethylene glycol monobutyl ether   | 111-76-2 |              |
| Diethylene glycol monobutyl ether | 112-34-5 |              |

**New Jersey Worker and Community Right-To-Know Act (Labeling Requirements)**

| Chemical name                     | CAS#         | New Jersey TS Number |
|-----------------------------------|--------------|----------------------|
| Alkyl polyamide                   | Trade secret | 136411-5935P         |
| Diesel                            | 68334-30-5   |                      |
| Ethylene glycol monobutyl ether   | 111-76-2     |                      |
| Diethylene glycol monobutyl ether | 112-34-5     |                      |

**EPA Hazard Categories (SARA 311, 312):** Immediate Health Hazard

## CHEMICAL INVENTORY

United States: The ingredients of this product are on the TSCA inventory.

## 16. OTHER INFORMATION

### RECOMMENDED USES AND RESTRICTIONS

Please consult the product and/or application information bulletins for this product.

### HMIS RATING

|           |                 |               |        |
|-----------|-----------------|---------------|--------|
| Health: 1 | Flammability: 2 | Reactivity: 0 | PPI: - |
|-----------|-----------------|---------------|--------|

### LEGEND

|          |                                                                               |
|----------|-------------------------------------------------------------------------------|
| STP      | Standard temperature and pressure                                             |
| W/W      | Weight/Weight                                                                 |
| 0 (HMIS) | Minimal hazard                                                                |
| 1 (HMIS) | Slight hazard                                                                 |
| 2 (HMIS) | Moderate hazard                                                               |
| 3 (HMIS) | Serious hazard                                                                |
| 4 (HMIS) | Severe hazard                                                                 |
| X (HMIS) | Personal protection rating to be supplied by user depending on use conditions |

**Product name: WITCOMUL 3241**

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The opinions expressed herein are those of qualified experts within Akzo Nobel. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and of these opinions and the conditions of use of this product are not within the control of Akzo Nobel, it is the user's obligation to determine the conditions of safe use of the products.