SILVER FERN CHEMICAL, INC.

Safety Data Sheet
Dimethylaminopropylamine

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifier

Product Name: Dimethylaminopropylamine

Synonym(s): DMAPA; 1-Amino-3-dimethylamino propane; 1,3-Propanediamine, N,N-dimethyl-; 3-Dimethylaminopropylamine

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

General Use: Industrial and laboratory applications

Uses Advised Against: None specified

1.3 Details of the Supplier and of the Safety Data Sheet

Distributor Information:

Silver Fern Chemical, Inc.
121 W. De La Guerra Street, Suite B
Santa Barbara, CA 93101 USA
Phone: +1-866-282-3384
Email Address - info@silverfernchemical.com; Website - www.silverfernchemical.com

1.4 Emergency Telephone Number

+1-800-535-5053; Outside USA & Canada +1-352-323-3500

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition: Substance

Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008

Flammable Liquid - Category 3 [H226]
Acute Toxicity, Oral - Category 4 [H302]
Acute Toxicity, Dermal - Category 4 [H312]
Skin Corrosion - Category 1B [H314]
Sensitization, Skin - Category 1B [H317]
Aquatic Toxicity, Acute - Category 3 [H402]

2.2 Label elements

Hazard symbol(s):

GHS02 GHS05 GHS07

Signal word: **Danger**

Hazard statement(s):
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H402 - Harmful to aquatic life

Precautionary statements

[Prevention]
P210 - Keep away from heat, open flames and hot surface. No smoking.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 + P242 - Use explosion proof electrical, ventilating and lighting equipment. Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe spray, mist and vapor.
P264 - Wash hands and other exposed skin areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves, protective clothing and eye protection.

[**Response**]
P301 + P330 + P331 + P310 - IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER or doctor.
P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340 + P310 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor.

P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
P321 - Specific treatment: Immediately contact a POISON CENTER or doctor. Refer to Section 4 of this SDS.
P333 + P313 - If skin irritation or rash occurs: Get medical attention.
P363 - Wash contaminated clothing before reuse.
P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide for extinction.

[Storage] P405 + P403 + P235 - Store locked up in a well-ventilated place. Keep cool.

[Disposal] P501 - Dispose of contents and containers in accordance with national and local regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None as defined under 29 CFR 1900.1200.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

% by Weight	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
≥ 99.8	Dimethylaminopropylamine	109-55-7	203-680-9	612-061-00-6	H226, H302, H312, H314, H317

There are no additional ingredients present in this product which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3.2 Mixtures

Not applicable

SECTION 4 – FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Do not use mouth-to-mouth method if victim 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. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Seek medical attention if symptoms persist or if the victim feels unwell.

Eyes: Immediately flush eyes with large amounts of water or saline solution for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. Seek immediate medical attention, preferably from an ophthalmologist.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes before reuse. Seek immediate medical attention for chemical burns. If irritation persists or if the victim feels unwell, seek medical attention.

Ingestion: Rinse mouth with water if the victim is conscious. Remove dentures if present. DO NOT induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the victim on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Seek immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Potential health symptoms and effects

Eyes: Causes serious eye damage. Causes burns to the eyes and surrounding tissue. May cause permanent eye damage or visual impairment. Risk of blindness! Mist or vapor can cause severe eye irritation inflammation, pain, tearing and blurred vision.

Skin: Harmful in contact with skin. Causes severe skin irritation and burns. Contact with unprotected skin can cause localized redness, itching pain, blisters and burns. Prolonged contact with unprotected skin may cause tissue damage. May cause skin sensitization with localized redness, itching and rash. Persons previously sensitized can experience allergic skin reactions with redness, itching, swelling and rash upon re-exposure to this product. May cause allergic dermatitis. Prolonged contact with unprotected skin may result in the absorption of harmful amounts of material.

Inhalation: Harmful if inhaled. This substance is extremely destructive to tissue of the mucous membranes and upper respiratory tract, Causes severe respiratory irritation with headache, sore throat, cough, chest tightness and shortness of breath. Prolonged and repeated exposure may cause pulmonary edema and damage to the respiratory system.

Ingestion: Harmful if swallowed. Causes burns to the lips, mouth, throat and gastrointestinal tract with abdominal pain, vomiting, diarrhea, shock, collapse and possible death. May cause perforation of and severe and damage to the digestive tract.

Chronic: Individuals with pre-existing skin conditions and respiratory disorders may be more susceptible to the effects of this product. Prolonged and repeated exposure may cause respiratory damage. May cause an allergic skin reaction with subsequent allergic upon re-exposure to this product or similar amines. May cause allergic dermatitis.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to doctor and hospital personnel

Treat symptomatically and supportively.

SECTION 5 – FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable methods of extinction: Use extinguishing media such as water spray or fog, carbon dioxide, foam and dry chemical.
Unsuitable methods of extinction: Water jets or streams may spread the fire.

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapor! Vapors are heavier than air and can travel along the ground to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Closed containers may explode due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

Explosion hazards: Avoid sources of ignition. Vapors may form an explosive mixture with air, especially in confined spaces. Ground and bond containers in storage and when container is in use.

5.3 Advice to firefighters

Firefighters should wear full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Firefighters must control runoff to prevent environmental contamination. Notify appropriate authorities of potential fire and explosion hazard if liquid enters sewers or waterways.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Wear appropriate protective clothing and equipment designated in Section 8.2. Ventilate the area. Remove all sources of ignition. NO SMOKING. Clean up spills immediately. Spill creates a slip hazard.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements.

6.3 Methods and materials for containment and cleaning up

Approach spill from upwind direction. DO NOT flush spill down the drain. Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material using non-sparking tools and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

For indications about waste treatment, see Section 13.

SECTION 7 – STORAGE AND HANDLING

7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Do not get in eyes or on skin or clothing. Do not inhale mist or vapor. NO SMOKING. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Open containers slowly to control possible pressure release. Take precautionary measures against static discharge. Wash contaminated clothing and shoes thoroughly before reuse.

Advice on protection against fire and explosion

Keep away from heat and sources of ignition. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

7.2 Conditions for safe storage, including any incompatibilities

Store in dry, cool, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. Keep away from heat and ignition sources. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers are hazardous when empty as they contain product residue. Do not cut, drill, weld, braze, solder grind or perform similar operations on or near empty containers. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Keep out of reach of children.

7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be

selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear safety glasses with unperforated side shields or splash goggles during use.

Hand protection: Wear butyl rubber gloves or those recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing. Wear protective boots if the situation requires.

Respiratory protection: Always use an approved respirator when vapor/aerosols exceed permissible exposure limits. Where risk assessment shows air-purifying respirators are appropriate use a half-mask respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear, colorless liquid
Odor	Ammoniacal
Odor Threshold	No data available
Molecular Weight	102.18 g/mol
Chemical Formula	$C_5H_{14}N_2$
pH	12.7 (100 g/l @ 20 °C)
Freezing/Melting Point	- 70 °C (- 94 °F) [literature]
Boiling Point	135.1 °C (275.2 °F) @ 1,013 hPa
Evaporation Rate	No data available
Flammability (solid, gas)	Not applicable
Flash Point	35 °C (95 °F), closed cup
Autoignition Temperature	217 °C (423 °F)
Decomposition Temperature	365 °C (689 °F) 680 kJ/kg, DSC [DIN 51007]
Lower Explosive Limit (LEL)	5 - 15% (v)
Upper Explosive Limit (UEL)	No data available
Vapor Pressure	7.25 hPa @ 20 °C
Vapor Density	3.03 [Air = 1]
Density	0.818 g/cc @ 20 °C
Viscosity, Dynamic	1.6 mPa.s @ 20 °C [literature]
Solubility in Water	Miscible @ 20 °C
Partition Coefficient (n-octanol/water)	log P_{ow} = - 0.352
Oxidizing Properties	Not applicable
Explosive Properties	Not applicable
Volatiles by Weight @ 21 °C	No data available

9.2 Other Data

No data available

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity

This material is stable under normal handling conditions and use.

10.2 Chemical Stability

This material is stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapors may form explosive mixtures with air. Hazardous polymerization will not occur.

10.4 Conditions to avoid
Avoid temperature extremes, sources of ignition, hot surfaces and contact with incompatible materials.

10.5 Incompatible materials
Oxidizing agents, strong acids, carbon dioxide

10.6 Hazardous decomposition products
Thermal decomposition products include oxides of carbon and nitrogen oxides (NO_x).

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity
LD_{50}, rat: 410 mg/kg

Acute inhalation toxicity
LC_{50}, rat: > 4.3 mg/l, 4 h (vapor); no deaths occurred

Acute dermal toxicity
LD_{50}, rabbit: 2,139 mg/kg

Skin irritation
Causes severe skin burns and serious skin irritation.

Eye irritation
Causes serious eye damage. Risk of blindness!

Sensitization
May cause an allergic skin reaction.

Carcinogenicity
No data available

Germ cell mutagenicity
No data available

Reproductive toxicity
No data available

Specific organ toxicity - single exposure
May cause respiratory irritation.

Specific organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Further information
This product contains no substances present at levels greater than or equal to the 0.1% threshold (de minimis) that are identified as a probable, possible, potential or confirmed carcinogens by ACGIH, IARC, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicates it causes adverse developmental or fertility effects.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity
This product is toxic to aquatic life with long lasting effects.

Acute toxicity to fish:	LC_{50} - Leuciscus idus (Golden orfe), 96 h: 146.63 mg/l
Acute toxicity to aquatic invertebrates:	EC_{50} - Daphnia magna (Water flea), 48 h: 98.37 mg/l
Acute toxicity to aquatic plants:	EC_{50} - Desmodesmus subspicatus (Green algae), 72 h: 66.08 mg/l
Acute toxicity to micro-organisms:	EC_{50} - Pseudomonas putida (Bacteria), 17 h: 413.80 mg/l

12.2 Persistence and degradability
This substance is readily biodegradable.

12.3 Bioaccumulation potential
This substance does not bioaccumulate.

12.4 Mobility in soil
The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

12.5 Results of PBT and vPvB assessment
This substance is not persistent, bioaccumulative and toxic (PBT) and not very persistent and very bioaccumulative (vPvB).

12.6 Other effects

Additional ecological information

Do not allow material to run into surface waters, wastewater or soil.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

RCRA F-Series: No listings above the reportable threshold (de minimis)
RCRA U-Series: No listings above the reportable threshold (de minimis)

SECTION 14 – TRANSPORTATION INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

Limited quantity for corrosive liquids in Packing Group II when inner packagings are not over 1.0 liter (0.3 gallon) net capacity each, packed in a strong outer packaging.

USA DOT (Ground Transportation) - Bulk and Non-bulk

Proper Shipping Name	Amine, liquid, corrosive, flammable, n.o.s. (Dimethylaminopropylamine)
Hazard Class	8 (3)
UN	UN2734
Packing Group	II
NAREG	Guide #132
Packaging Authorization	Non-Bulk: 49 CFR 173.202; Bulk: 173.243
Packaging Exceptions	49 CFR 173.154

Drum Label(s)

IMO/IMDG (Water Transportation)

Proper Shipping Name	Amine, liquid, corrosive, flammable, n.o.s. (Dimethylaminopropylamine)
Hazard Class	8 (3)
UN	UN2734
Packing Group	II
Marine Pollutant	No
EMS Number	F-E, S-C

ICAO/IATA (Air Transportation)

Proper Shipping Name	Amine, liquid, corrosive, flammable, n.o.s. (Dimethylaminopropylamine)
Hazard Class	8 (3)
UN	UN2734
Packing Group	II
Quantity Limitations	49 CFR 175.27 and 175.75 - Cargo Aircraft Only: 30 l; Passenger Aircraft: 1 l

RID/ADR (Rail Transportation)

Proper Shipping Name	Amine, liquid, corrosive, flammable, n.o.s. (Dimethylaminopropylamine)
Hazard Class	8 (3)
UN	UN2734
Packing Group	II

SECTION 15 - REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200.

OSHA Process Safety Management Standard: This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Toxic Substance Control Act (TSCA) Inventory: All substances in this product are listed on the TSCA Inventory. This product is not subject to TSCA 12(b) Export Notification.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b)) and 1310.4(f)(2)) and Chemical Code Number
Not listed

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number: Not listed

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals: Not listed

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories:

Flammable liquid and vapor	Causes severe skin burns and eye damage
Harmful if swallowed and in contact with skin	May cause an allergic skin reaction

SARA 313 Information: None of the components of the product exceed the threshold (de minimis) reporting requirements of Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: None of the components of the product exceed the threshold (de minimis) reporting levels of established by these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains no CERCLA reportable substances.

Clean Air Act (CAA)

This product does not contain Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).
This product does not contain Class 1 Ozone depletors.
This product does not contain Class 2 Ozone depletors.

Clean Water Act (CWA)

This product does not contain Hazardous Substances.
This product does not contain Priority Pollutants.
This product does not contain Toxic Pollutants.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product contains no chemical(s) known to the state of California to cause cancer birth defects or reproductive harm in concentrations that exceed the threshold (de minimis) reporting levels established under Proposition 65.

Other U.S. State Inventories

Dimethylaminopropylamine (CAS #109-55-7) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: MN, PA.

Canada

WHMIS Hazard Classification: No data available

Canadian National Pollutant Release Inventory (NPRI): None of the components of this product are listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 1 (slightly hazardous to water)

Global Chemical Inventory Lists

Country	Inventory Name	Listed
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (KECIL)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*Yes - All components of this product comply with the inventory requirements administered by the governing country.
No - One or more components of this product are not on the inventory or are exempt from listing.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

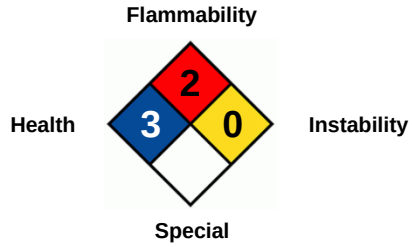
Hazardous Material Information System (HMIS)

C = safety glasses, gloves, & apron

HMIS Hazard Rating Legend
0 = Minimal 1 = Slight 2 = Moderate
3 = Serious 4 = Severe
* = Chronic Health Hazard

NFPA Hazard Rating Legend
0 = Insignificant 1 = Slight 2 = Moderate
3 = High 4 = Extreme

National Fire Protection Association (NFPA)



Abbreviation Key

ACGIH	American Conference of Governmental Industrial Hygienists	**LD_{Lo}**	Lowest Lethal Dose
ADR	Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)	**mppcf**	Millions of Particles Per Cubic Foot
CAS	Chemical Abstract Services	**NA**	North America
CFR	Code of Federal Regulations	**NAERG**	North American Emergency Response Guide Book
COC	Cleveland Open Cup	**NIOSH**	National Institute for Occupational Safety & Health
DOT	Department of Transportation	**NTP**	National Toxicology Program
EC_{50}	Half maximal effective concentration	**OSHA**	Occupational Safety and Health Administration
EMS	Emergency Response Procedures for Ships Carrying	**PBT**	Persistent, Bioaccumulating and Toxic
EPA	Environmental Protection Agency	**PEL**	Permissible exposure limit
ErC_{50}	Reduction of Growth Rate	**PMCC**	Pensky-Martens Closed Cup
ERG	Emergency Response Guide Book	**ppm**	Parts Per Million
FDA	Food and Drug Administration	**RCRA**	Resource Conservation and Recovery Act
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	**RID**	Dangerous Goods by Rail
HCS	Hazard Communication Standard	**RQ**	Reportable Quantity
IARC	International Agency for Research on Cancer	**TCC/Tag**	Tagliabue Closed Cup
IATA	International Air Transport Association	**TLV**	Threshold Limit Value
IC_{50}	Half Maximal Inhibitory Concentration	**TSCA**	Toxic Substance Control Act
ICAO	International Civil Aviation Organization	**TWA**	Time-weighted Average
IDLH	Immediately Dangerous to Life and Health	**UN**	United Nations
IMDG	International Maritime Dangerous Goods	**VOC**	Volatile Organic Compounds
IMO	International Maritime Organization	**vPvB**	Very Persistent and Very Bioaccumulating
LC_{50}	50% Lethal Concentration	**WHMIS**	Workplace Hazardous Materials Information System
LD_{50}	50% Lethal Dose		

DISCLAIMER OF RESPONSIBILITY

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

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