

## Safety Data Sheet

### Dimethylethanolamine (DMEA)

#### SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

##### 1.1 Product Identifier

**Product Name:** Dimethylethanolamine (DMEA)

**Synonym(s):** Dimethylethanolamine; DMEA; 2-Dimethylaminoethanol; (2-Hydroxyethyl) dimethylamine

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

**General Use:** Industrial and laboratory use

**Uses Advised Against:** None known

##### 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:** Mixture

**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]

Acute Toxicity, Inhalation - Category 3 [H331]

##### 2.2 Label elements

**Hazard symbol(s):**



GHS02



GHS06



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  
H331 - Toxic if inhaled

**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.  
P271 - Use only outdoors or in a well-ventilated area.

**[Response]**

P280 - Wear protective gloves, protective clothing and eye protection.  
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.

P363 - Wash contaminated clothing before reuse.

P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide for extinction.

P405 + P403 + P233 + P235 - Store locked up in a well-ventilated place. Keep container tightly closed. Keep cool.

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

[Storage]

[Disposal]

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

This substance is a lachrymator.

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

| % by Weight | Ingredient               | CAS Number | EC Number | Index Number | GHS Classification           |
|-------------|--------------------------|------------|-----------|--------------|------------------------------|
| 99.8        | N,N-Dimethylethanolamine | 108-01-0   | 203-542-8 | 603-047-00-0 | H226, H302, H312, H314, H332 |

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. If irritation persists or in case of chemical burns, 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 severe eye irritation and serious eye damage. Symptoms may include inflammation, swelling, pain, tearing and blurred vision. May cause burns to the eyes and surrounding tissue. May cause permanent eye damage. Risk of blindness! Mist or vapor can cause eye irritation.

**Skin:** Causes serious skin irritation and severe burns. Symptoms may include localized redness, itching, blistering, pain and burns.

**Inhalation:** Toxic if inhaled. Causes severe respiratory irritation with headache, cough, chest tightness and shortness of breath. This substance is damaging to the mucous membranes. Prolonged and repeated exposure may be damaging to the respiratory system.

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

### 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

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### 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

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### 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. 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. Keep away from acids. 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

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### 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 protective splash goggles during use.

**Hand protection:** Wear gloves made of butyl rubber 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                                    | Amine-like                        |
| Odor Threshold                          | No data available                 |
| Molecular Weight                        | 89.14 g/mol                       |
| Chemical Formula                        | C <sub>4</sub> H <sub>11</sub> NO |
| pH                                      | 10.5 - 11.0                       |
| Freezing/Melting Point                  | - 59 °C (- 74.2 °F)               |
| Boiling Point                           | 134 °C (273.2 °F)                 |
| Evaporation Rate                        | No data available                 |
| Flammability (solid, gas)               | Not applicable                    |
| Flash Point                             | 40 °C (104 °F)                    |
| Autoignition Temperature                | 230 °C (446 °F)                   |
| Decomposition Temperature               | No data available                 |
| Lower Explosive Limit (LEL)             | 1.4% (v)                          |
| Upper Explosive Limit (UEL)             | 12.2% (v)                         |
| Vapor Pressure                          | 10 hPa @ 28.1 °C                  |
| Vapor Density                           | 3.03 [Air = 1]                    |
| Specific Gravity                        | 0.89 @ 21.6 °C                    |
| Viscosity                               | No data available                 |
| Solubility in Water                     | Miscible                          |
| Partition Coefficient (n-octanol/water) | log P <sub>ow</sub> = - 0.55      |
| Oxidizing Properties                    | Not applicable                    |
| Explosive Properties                    | Not applicable                    |
| Volatiles by Weight @ 21 °C             | 100%                              |

### 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

Hazardous polymerization will not occur.

### 10.4 Conditions to avoid

Avoid temperature extremes, sources of ignition, hot surfaces and contact with incompatible materials. Avoid exposure to moisture; keep under nitrogen after opening.

### 10.5 Incompatible materials

Oxidizing agents, strong acids, halogenated compounds, isocyanates, copper, zinc, iron

### 10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon, nitrogen oxides (NO<sub>x</sub>) and nitrous gases.

## SECTION 11 – TOXICOLOGICAL INFORMATION

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### 11.1 Information on toxicological effects

**Acute oral toxicity**

LD<sub>50</sub>, rat: 1,187 mg/kg

**Acute inhalation toxicity**

LC<sub>50</sub>, rat: 5.19 mg/l, 4 h

**Acute dermal toxicity**

LD<sub>50</sub>, rabbit: 1,219 - 3,135 mg/kg

**Skin irritation**

Causes severe skin burns and serious skin irritation.

**Eye irritation**

Causes serious eye damage. Risk of blindness!

**Sensitization**

No data available

**Genotoxicity in vitro**

No data available

**Mutagenicity**

No data available

**Specific organ toxicity - single exposure**

No data available

**Specific organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

May be fatal if swallowed and enters the airways.

### 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

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### 12.1 Toxicity

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

**Acute toxicity to fish:** LC<sub>50</sub> - Leuciscus idus (Golden orfe), 96 h: 146.63 mg/l

**Acute toxicity to aquatic invertebrates:** EC<sub>50</sub> - Daphnia magna (Water flea), 48 h: 98.37 mg/l

**Acute toxicity to aquatic plants:** EC<sub>50</sub> - Desmodesmus subspicatus (Green algae), 72 h: 66.08 mg/l

**Acute toxicity to micro-organisms:** EC<sub>50</sub> - 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 material does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

### 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

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### 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 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    | 2-Dimethylaminoethanol                  |
| Hazard Class            | 8 (3)                                   |
| UN                      | UN2051                                  |
| Packing Group           | II                                      |
| NAREG                   | Guide #128                              |
| 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 | 2-Dimethylaminoethanol |
| Hazard Class         | 8 (3)                  |
| UN                   | UN2051                 |
| Packing Group        | II                     |
| Marine Pollutant     | No                     |
| EMS Number           | F-E, S-C               |

### ICAO/IATA (Air Transportation)

|                      |                                                                               |
|----------------------|-------------------------------------------------------------------------------|
| Proper Shipping Name | 2-Dimethylaminoethanol                                                        |
| Hazard Class         | 8 (3)                                                                         |
| UN                   | UN2051                                                                        |
| 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 | 2-Dimethylaminoethanol |
| Hazard Class         | 8 (3)                  |
| UN                   | UN2051                 |
| 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 | Toxic if inhaled                        |

**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 depleters.

This product does not contain Class 2 Ozone depleters.

**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**

*N,N*-Dimethylethanolamine (CAS #108-01-0) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: MA, NJ, PA.

**Canada**

**WHMIS Hazard Classification**

Flammable liquid and vapor

Causes skin irritation and serious eye damage

Harmful if swallowed and in contact with skin

Toxic if inhaled

**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)**

|                     |   |   |
|---------------------|---|---|
| HEALTH              | * | 3 |
| FLAMMABILITY        |   | 2 |
| PHYSICAL HAZARD     |   | 0 |
| PERSONAL PROTECTION |   | C |

C = safety glasses, gloves, & apron

**HMIS Hazard Rating Legend**

0 = Minimal 1 = Slight 2 = Moderate

3 = Serious 4 = Severe

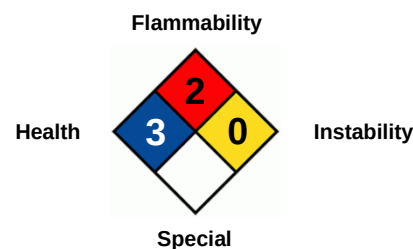
\* = Chronic Health Hazard

**NFPA Hazard Rating Legend**

0 = Insignificant 1 = Slight 2 = Moderate

3 = High 4 = Extreme

**National Fire Protection Association (NFPA)**



#### **Abbreviation Key**

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

#### **DISCLAIMER OF RESPONSIBILITY**

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