

### SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifier

**Product name:** Food Grade d-Limonene

**Product Code(s):** FGDL

**Synonym(s):** Food grade d-limonene; Citrus stripper oil; Fractions derived from distillation of cold pressed orange oil; Terpene hydrocarbons

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**General use:** General purpose cleaner/degreaser

**Uses advised against:** None known

#### 1.3 Details of the supplier and of the safety data sheet

**Manufacturer/Distributor**

Suncoast Research Labs, Inc./dba Citrus Depot

2901 Anvil Street North

St. Petersburg, FL 33710 USA

+1-800-424-8045; +1 -727-344-7627

#### 1.4 Emergency telephone number: ChemTel Inc (24 hours) +1-800-255-3924; International: +1-813-248-0585

### 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]

Skin irritation - Category 2 [H315]

Skin sensitizer - Category 1 [H317]

Chronic aquatic toxicity - Category 1 [H410]

#### 2.2 Label elements

**Hazard symbol(s):**



GHS02



GHS07



GHS09

**Signal word:**

Danger

**Hazard statement(s):**

H226 - Flammable liquid and vapor

H315 - Causes skin irritation

H317 - May cause allergic skin reaction

H410 - Very toxic to aquatic life with long lasting effects

**Precautionary statements:**

**[Prevention]**

P210 - Keep away from heat, sparks, open flames and hot surfaces. 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.

P261 - Avoid breathing mists, vapor and spray.

P264 - Wash hands or other skin areas contacting this product thoroughly after handling.

P272 - Contaminated work clothing should not be allowed out of the workplace.

P273 - Avoid release to the environment.

P280 - Wear protective gloves protective clothing and eye protection.

**[Response]**

P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water or shower.

P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a comfortable position for breathing. Call a POISON CENTER or doctor if you feel unwell.

P321 - Specific treatment: Seek medical attention if you feel unwell. Refer to Section 4 of this SDS.

P333 + P313 - If skin irritation or rash occurs: Get medical attention.

P362 - Take off contaminated clothing and wash before reuse.

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

P391 - Collect spillage.

**[Storage]**

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

**[Disposal]**

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

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

May cause drying and cracking of the skin.

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

| % by Weight | Ingredient                  | CAS Number | EC Number | Index Number | GHS Classification     |
|-------------|-----------------------------|------------|-----------|--------------|------------------------|
| >95         | Citrus Terpene Hydrocarbons | 94266-27-4 | -----     | -----        | H226, H315, H317, H410 |

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 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. If unconscious place in the recovery position and get immediate medical attention. Maintain an open airway. Loosen tight clothing such as a collar tie, belt or waistband. If symptoms persist or if the victim feels unwell, seek medical attention.

**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. If irritation persists, seek 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 if a rash develops, 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:** May cause eye irritation with redness, swelling, stinging and tearing. Vapor or mist can cause eye irritation.

**Skin:** Causes skin irritation with localized redness itching and discomfort. May cause an allergic skin reaction in susceptible individuals. Repeated exposure to unprotected skin may cause drying and cracking of the skin.

**Inhalation:** Vapor from this product may cause irritation of the nose, throat and lungs. May cause an allergic, asthma-like response in some individuals.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting abdominal pain and diarrhea. Aspiration of material during swallowing or vomiting can result in lung inflammation or lung injury. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish colored skin, rapid breathing and rapid heart rate.

**Chronic:** Persons with pre-existing skin disorders or respiratory impairment may be more susceptible to the effects of this product. Prolonged and repeated skin exposure may result in defatting of skin and dermatitis. May cause an allergic skin reaction. May cause an allergic respiratory reaction with asthma-like symptoms. Terpene Hydrocarbons are known animal carcinogens. Refer to Section 11.2.

### 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 foam, dry chemical or carbon dioxide.

**Unsuitable methods of extinction:** Water spray may be ineffective. Water jets and 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.

Rags soaked with any solvent can present a fire hazard and should be stored in UL listed or Factory Mutual approved, covered containers. Improperly stored rags, under certain conditions, can lead to spontaneous combustion.

**Explosion hazards:** Avoid sources of ignition. Vapor may form an explosive mixture with air, especially in confined areas.

### 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. Be aware that burning liquid may float on water. 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. Spills create 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

DO NOT FLUSH SPILL DOWN THE DRAIN. Approach spill from upwind direction. Cover drains and contain spill. Cover with a large quantity of inert absorbent. Do not use combustible absorbents such as sawdust. Collect product using non-sparking tools and place into approved container for proper disposal. Observe possible material restrictions (Sections 7.1 and 10.5). Do not flush spilled material down the drain. Clean contaminated area with soap and water.

In the USA spills of material which could reach surface waters must be reported to the United States Coast Guard National Response Center at (800) 424-8802 or (202) 426-2675.

### 6.4 Reference to other sections

For indications about waste treatment, see Section 13.

## SECTION 7 - HANDLING AND STORAGE

### 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. Wash contaminated clothing and shoes thoroughly before reuse.

#### Advice on protection against fire and explosion

Keep away from heat, sparks, open flames and hot surfaces. To avoid fire or explosion, dissipate static electricity 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 ignition sources and hot surfaces. Transfer only to approved containers having correct labeling. Protect containers against physical damage. Keep containers tightly closed when not in use. 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 locked up and 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.

**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 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                                    | Citrus                                  |
| Odor Threshold                          | 200 ppb                                 |
| Molecular Weight                        | Not applicable                          |
| Chemical Formula                        | Not applicable                          |
| pH                                      | No data available                       |
| Freezing/Melting Point                  | -96 °C (-140.8 °F)                      |
| Boiling Point, Initial                  | 154.4 °C (310 °F)                       |
| Evaporation Rate                        | 0.2 [n-BuOAc = 1]                       |
| Flammability (solid, gas)               | Not applicable                          |
| Flash Point                             | 46 °C (115 °F) TCC                      |
| Autoignition Temperature                | 237 °C (458 °F)                         |
| Decomposition Temperature               | No data available                       |
| Lower Explosive Limit (LEL)             | 0.7%                                    |
| Upper Explosive Limit (UEL)             | 6.1%                                    |
| Vapor Pressure                          | <2 mm Hg @ 22° C                        |
| Vapor Density                           | >1 [Air = 1]                            |
| Density                                 | 0.838 - 0.843 g/ml (6.99 - 7.04 lb/gal) |
| Viscosity                               | 0.923 cp @ 25° C                        |
| Solubility in Water                     | <1 g/100 ml                             |
| Partition Coefficient (n-octanol/water) | log P <sub>ow</sub> = 0.81 - 6          |
| Oxidizing Properties                    | Not applicable                          |
| Explosive Properties                    | Not applicable                          |
| Volatiles by Weight @ 21 °C             | >95%                                    |

### 9.2 Other Data

No data available

## SECTION 10 - STABILITY AND REACTIVITY

### 10.1 Reactivity

No special reactivity has been reported during normal conditions of handling and use.

### 10.2 Chemical Stability

This material is stable under recommended storage and handling conditions.

### 10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4 Conditions to avoid

Temperature extremes, contact with incompatible materials

## 10.5 Incompatible materials

Strong oxidizing agents

## 10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon and hydrocarbon fragments.

# SECTION 11 - TOXICOLOGICAL INFORMATION

## 11.1 Information on toxicological effects

### Acute oral toxicity

LD<sub>50</sub>, rat: 5,300 mg/kg

### Acute inhalation toxicity

LC<sub>50</sub>, mouse: 67.5 g/l, 4 h

### Acute dermal toxicity

LD<sub>50</sub>, rabbit: > 5,000 mg/kg

### Skin irritation

Causes skin irritation.

### Eye irritation

May cause eye irritation.

### Sensitization

May cause an allergic skin reaction and sensitization; may cause allergic respiratory reaction

### Genotoxicity in vitro

No data available

### Mutagenicity

No data available

### Specific organ toxicity - single exposure

May cause respiratory irritation.

### Specific organ toxicity - repeated exposure

No data available

### Aspiration hazard

May be fatal if swallowed and enters the airways.

## 11.2 Further information

Terpene Hydrocarbons (CAS #5989-27-5): IARC, Group 3 carcinogen - *Not classifiable as to its carcinogenicity to humans*. Not listed as a carcinogen by ACGIH, NTP or OSHA.

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

Handle in accordance with good industrial hygiene and safety practice.

# SECTION 12 - ECOLOGICAL INFORMATION

## 12.1 Toxicity

Terpene hydrocarbons are very toxic to aquatic life with long lasting effects.

**Acute toxicity to fish:** LC<sub>50</sub> - Pimephales promelas (Fathead minnow), 96 h: 0.72 mg/l

**Acute toxicity to aquatic invertebrates:** EC<sub>50</sub> - Daphnia pulex (Water flea), 48 h: 69.6 mg/l

## 12.2 Persistence and degradability

This material is expected to be readily biodegradable.

## 12.3 Bioaccumulation potential

Terpene hydrocarbons have the potential to bioaccumulate.

## 12.4 Mobility in soil

Terpene hydrocarbons absorb to soil and have low mobility.

## 12.5 Results of PBT and vPvB assessment

No data available

## 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

The generation of waste should be avoided or minimized whenever possible. Although this product is classified as non-hazardous under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261 this material and its container should be disposed of in a safe way as empty containers may contain product residue. Leave chemicals in original containers. No mixing with other waste. Handle unclean containers like the product itself. Incinerate in an approved facility. Do not incinerate closed container. Dispose of in accordance with the Directive 2008/98/EC as well as other national, federal, state/provincial and local laws and regulations.

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

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

## SECTION 14 - TRANSPORT 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.

*A flammable liquid with a flash point at or above 38 °C (100 °F) that does not meet the definition of any other hazard class may be reclassified as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation are impracticable.*

*Limited quantity for flammable liquids Packing Group III when inner packagings are not over 5.0 liters (1.3 gallons) net capacity each, packed in a strong outer packaging.*

#### USA DOT (Ground Transportation) - Non-bulk & Bulk

|                                |   |
|--------------------------------|---|
| <b>Proper Shipping Name</b>    | Combustible liquid, n.o.s. (terpene hydrocarbons) |
| <b>Hazard Class</b>            | 3   |
| <b>UN/NA</b>                   | NA1993  |
| <b>Packing Group</b>           | III   |
| <b>NEAREG</b>                  | Guide #128  |
| <b>Packaging Authorization</b> | Non-Bulk: 49 CFR 173.203; Bulk: 173.241           |
| <b>Packaging Exceptions</b>    | 49 CFR 173.150                                    |

**Drum Label(s)**



#### IMO/IMDG (Water Transportation)

|                             |                              |
|-----------------------------|------------------------------|
| <b>Proper Shipping Name</b> | Terpene hydrocarbons, n.o.s. |
| <b>Hazard Class</b>         | 3                            |
| <b>UN/NA</b>                | UN2319                       |
| <b>Packing Group</b>        | III                          |
| <b>Marine Pollutant</b>     | Yes                          |
| <b>EMS Number</b>           | F-E, S-D                     |

#### ICAO/IATA (Air Transportation)

|                             |   |
|-----------------------------|---|
| <b>Proper Shipping Name</b> | Terpene hydrocarbons, n.o.s.  |
| <b>Hazard Class</b>         | 3   |
| <b>UN/NA</b>                | UN2319  |
| <b>Packing Group</b>        | III   |
| <b>Quantity Limitations</b> | 49 CFR 175.27 and 175.75 - Cargo Aircraft Only: 220 l; Passenger Aircraft: 60 l |

#### RID/ADR (Rail Transportation)

|                             |                              |
|-----------------------------|------------------------------|
| <b>Proper Shipping Name</b> | Terpene hydrocarbons, n.o.s. |
| <b>Hazard Class</b>         | 3                            |
| <b>UN/NA</b>                | UN2319                       |
| <b>Packing Group</b>        | III                          |

## 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:**  
No listings



**Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number:** No listings

**Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals:** No listings

**Superfund Amendments and Reauthorization Act (SARA)**

**SARA Section 311/312 Hazard Categories:** Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**SARA 313 Information:** None of the components of this 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 this product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

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

**Comprehensive Response Compensation and Liability Act (CERCLA):** None of the components of this product exceed the threshold (de minimis) for hazardous wastes established under CERCLA.

**Clean Air Act (CAA)**

This product does not contain any 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 any Hazardous Substances designated under the CWA.

This product does not contain any Priority Pollutants.

This product does not contain any 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**

The components of this product are not listed on any State Hazardous Substance Inventories, Right-to-Know lists or Air Quality/Air Pollutants lists and/or Air Quality/ Air Pollutants lists.

**Canada**

**WHMIS Hazard Classification**

Flammable liquid and vapor

Causes skin irritation

May be harmful if swallowed and enters the airways

May cause an allergic skin reaction

**Canadian National Pollutant Release Inventory (NPRI):** Terpenes (all isomers) are listed on the NPRI.

**European Economic Community**

**WGK, Germany (Water danger/protection):** 3 (serious hazard to waters)

**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              | 1 |
| 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

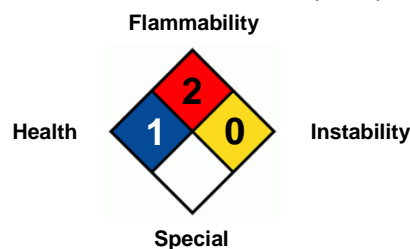
\* = Chronic Health Hazard

**NFPA Hazard Rating Legend**

0 = Insignificant 1 = Slight 2 = Moderate

3 = High 4 = Extreme

**National Fire Protection Association (NFPA)**



**Abbreviation Key**

|                  |   |
|------------------|---|
| ACGIH            | American Conference of Governmental Industrial Hygienists   |
| ADR              | Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road) |
| CAS              | Chemical Abstract Services  |
| CFR              | Code of Federal Regulations   |
| COC              | Cleveland Open Cup  |
| DOT              | Department of Transportation  |
| EC <sub>50</sub> | Half maximal effective concentration  |
| EMS              | Emergency Response Procedures for Ships Carrying  |

|                  |   |
|------------------|---|
| LD <sub>50</sub> | Lowest Lethal Dose                                  |
| mppcf            | Millions of Particles Per Cubic Foot                |
| NA               | North America                                       |
| NAERG            | North American Emergency Response Guide Book        |
| NIOSH            | National Institute for Occupational Safety & Health |
| NTP              | National Toxicology Program                         |
| OSHA             | Occupational Safety and Health Administration       |
| PBT              | 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   |                |  |

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