

Safety Data Sheet
Potassium Permanganate

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Potassium Permanganate
Synonym(s): Potassium Permanganate

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

General use: Industrial applications and laboratory use
Uses advised against: None known

1.3 Details of the supplier and of the safety data sheet

Manufacturer/Distributor

Silver Fern Chemical, Inc.
2226 Queen Anne Avenue North Suite C
Seattle, WA 98109 USA
1-866-282-3384
Website - www.silverfernchemical.com; email address - info@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

Oxidizing Solid - Category 2 [H272]
Acute Toxicity, Oral - Category 4 [H302]
Skin Irritation - Category 2 [H315]
Eye Damage - Category 1 [H318]
Reproductive Toxicity - Category 2 [H361d]
Aquatic Toxicity, Chronic - Category 1 [H410]

2.2 Label elements

Hazard symbol(s):



Signal word:

Danger

Hazard statement(s):

H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H361d - Suspected of damaging the unborn child
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements:

[Prevention]

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat and hot surfaces.
P220 - Keep away from combustible and incompatible materials (refer to Section 10.5).
P221 - Take any precaution to avoid mixing with reducing agents, combustible materials and organic materials.
P261 - Avoid breathing dust or fume.
P264 - Wash hands and other exposed skin areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment

[Response]

P280 - Wear protective gloves, protective clothing and eye protection.
P301 + P330 + P312 - IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
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.
P308 + P309 + P311 - IF exposed or concerned or if you feel unwell: Call a POISON CENTER or doctor.

P321 + P312 - Specific treatment: Seek medical attention if you feel unwell. Refer to Section 4 of this SDS.
P332 + P313 - If skin irritation occurs: Get medical attention.
P362 - Take off contaminated clothing and wash before reuse.
P370 + P378 - In case of fire: Use large amounts of water as extinguishing media. Use water only.
H391 - Collect spillage.
P405 - Store locked up.
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

No data available

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| % by Weight | Ingredient | CAS Number | EC Number | Index Number | GHS Classification |
|-------------|------------------------|------------|-----------|--------------|-------------------------------------|
| > 97.5 | Potassium permanganate | 7722-64-7 | 231-760-3 | 025-002-00-9 | H272, H302, H315, H318, H361d, H411 |

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 dust or fume 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 this 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. Immediately contact a doctor, paramedical personnel or POISON CONTROL for instructions.

Eyes: DO NOT RUB EYES OR KEEP EYES CLOSED. Immediately flush eyes with large amounts of water or saline solution for at least 30 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 reuse. Destroy contaminated shoes. If irritation persists, seek medical attention.

Ingestion: Rinse mouth with water if the victim is conscious. Remove dentures if present. Give 1 - 2 cupfuls of water or milk to drink if the victim is conscious, alert, able to swallow and is not experiencing respiratory distress. 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 include inflammation, swelling, pain, tearing, blurred vision and burns. May cause chemical conjunctivitis and bleeding. May cause cloudiness, discoloration of and damage to the cornea. May cause permanent eye damage. Risk of blindness! May cause mechanical irritation of the eye and surrounding tissue.

Skin: Causes skin irritation, rash and possible burns. May cause cold clammy skin with cyanosis or pale color. Contact with unprotected skin can cause brown stains on skin and possible hardening of the outer skin layer. Prolonged and repeated skin contact may cause burns, edema and tissue necrosis. May be harmful if absorbed through the skin.

Inhalation: Inhalation of dust or fume causes respiratory irritation with sore throat, cough, shortness of breath and chest tightness. May cause difficulty breathing, headache, nausea, dizziness, methemoglobinemia and cyanosis. May cause pulmonary edema that could potentially lead to death. Pulmonary edema may be delayed. Harmful if inhaled.

Ingestion: Harmful if swallowed. Causes irritation of the digestive tract with salivation, nausea, vomiting, abdominal pain and diarrhea. May cause burns and discoloration and ulceration of the lips, mouth, tongue and throat, laryngeal edema and necrosis of the pharyngeal mucosa. May cause slow heart rate, cardiovascular collapse, hypotension, decreased blood pressure and death. May cause severe and permanent damage to the digestive tract including perforation of the esophagus. May cause liver and kidney damage. May cause central nervous system effects including psychological disturbances. May form methemoglobin, which in sufficient concentration causes cyanosis. In high doses, manganese may increase anemia by interfering with iron absorption.

Chronic: Prolonged or repeated skin contact may cause defatting of the skin and dermatitis. May cause methemoglobinemia, characterized by chocolate-brown colored blood, headache, weakness, dizziness, labored breathing, cyanosis, rapid heart rate, unconsciousness and possible death. Chronic inhalation, skin absorption or ingestion of potassium permanganate can cause damage to the liver and kidneys. Chronic manganese toxicity through inhalation may result in "manganism", a disease of the central nervous system involving psychic and neurological

disorders. Effects may be delayed. Potassium permanganate may damage the unborn child. Refer to Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to doctor and hospital personnel

Treat symptomatically and supportively. Effects may be delayed.

SECTION 5 – FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable methods of extinction: Use water or dry sand only.

Unsuitable methods of extinction: DO NOT use dry chemical, carbon dioxide, Halon or foam extinguishing media on small fires.

5.2 Special hazards arising from the substance or mixture

Strong oxidizer! Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. This material is not combustible; however, it is a strong oxidizer and its heat of reaction with reducing agents or combustible materials may cause ignition. Releases oxygen upon decomposition, enhancing combustion.

Closed containers may rupture 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: Contact with combustible, organic or oxidizable materials may cause extremely violent combustion and explosion.

5.3 Advice to firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Water contaminated by this material must be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Avoid dust generation and accumulation. DO NOT inhale dust. 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.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

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. Carefully sweep, vacuum (with HEPA filter) or shovel material and place into an approved container for proper disposal. DO NOT use combustible materials, such as paper towels or straw brooms to clean up spills. DO NOT save material for reclamation. 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 breathe dust. NO SMOKING. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Wash contaminated clothing before reuse. Destroy contaminated shoes.

Advice on protection against fire and explosion

Avoid contact with combustible, organic or oxidizable materials. Keep away from heat and sources of ignition.

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 acids and reducing agents. Keep away from heat and ignition sources. Avoid storage on wood floors. Do not store near alkaline substances. 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 spillage. Containers are hazardous when empty as they contain product residues. 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

Occupational exposure limit values

The exposure limits listed in the table below are for manganese, elemental and inorganic compounds, as manganese or manganese fume

(7439-96-5).

| CAS Number | Ingredient | OSHA PEL | ACGIH TLV | NIOSH |
|------------|------------|-------------------------------|---------------------------|--|
| 7439-96-5 | Manganese | 5 mg/m ³ , ceiling | 0.1 mg/m ³ TWA | 1 mg/m ³ TWA; 3 mg/m ³ STEL; 5 mg/m ³ ceiling |

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 chemical goggles during use.

Hand protection: Wear Nitrile 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: Wear a dust mask with a type P3 filter when handling this product. Always use an approved respirator when vapor/aerosols/dusts 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 | Dark purple solid |
| Odor | Odorless |
| Odor Threshold | No data available |
| Molecular Weight | 158.03 g/mol |
| Chemical Formula | KMnO ₄ |
| pH | No data available |
| Freezing/Melting Point | > 240 °C (> 464 °F); decomposes |
| Boiling Point Range | No data available |
| Evaporation Rate | Not applicable |
| Flammability (solid, gas) | Non-flammable |
| Flash Point | Not applicable |
| Autoignition Temperature | No data available |
| Decomposition Temperature | > 240 °C (> 464 °F) |
| Lower Explosive Limit (LEL) | No data available |
| Upper Explosive Limit (UEL) | No data available |
| Vapor Pressure | No data available |
| Vapor Density | No data available |
| Specific Gravity | 2.7 @ 20 °C |
| Viscosity | No data available |
| Solubility in Water | 65.1 g/l @ 20 °C |
| Partition Coefficient (n-octanol/water) | Not applicable |
| Oxidizing Properties | The substance is classified as a category 2 oxidizer. |
| Explosive Properties | Not applicable |
| Volatiles by Weight @ 21 °C | 0% |

9.2 Other Data

No data available

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity

This OXIDIZING SOLID is stable under normal handling conditions and use.

10.2 Chemical Stability

This material is stable under recommended storage and handling conditions. Potassium permanganate solutions are unstable.

10.3 Possibility of hazardous reactions

Contact with combustible, organic or oxidizable materials may cause combustion. Hazardous polymerization will not occur.

10.4 Conditions to avoid

Avoid high temperatures, contact with incompatible materials and moisture. Avoid dust generation and accumulation.

10.5 Incompatible materials

Strong reducing agents, strong acids, sulfuric acid, hydrogen fluoride, flammable and combustible materials, organic compounds, powdered metal, alcohols, halogen compounds, phosphorus, ferrous salts, peroxides

10.6 Hazardous decomposition products

Thermal decomposition products include potassium oxides, manganese and manganese oxides and manganese oxide fumes.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity

LD₅₀, rat: > 2,000 g/kg

Acute inhalation toxicity

No data available

Acute dermal toxicity

No data available

Skin irritation

Causes skin irritation.

Eye irritation

Causes serious eye damage.

Sensitization

No data available

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

No data available

11.2 Further information

Manganese in general is a central nervous system poison and potassium permanganate has also been reported to have this property. Workers chronically exposed to airborne manganese have showed a 35% increase in the incidence of pneumonia. The fatal oral dose of potassium permanganate is estimated at 10 grams (3.5 oz.). Death may occur up to one month from the time of ingestion. If death is not immediate, jaundice and reduction in urine production may occur. Ingestion of potassium permanganate has caused mild Parkinsonian syndrome. The symptoms of which normally appear long after ingestion, sometimes years later.

Potassium permanganate is suspected of damaging the unborn child.

This product contains no substances present at levels greater than or equal to the 0.1% threshold (de minimis) that are identified as probable, possible, potential or confirmed carcinogens by ACGIH, IARC, NTP or OSHA.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity

This material is very toxic to aquatic life with long lasting effects.

Toxicity to fish: LC₅₀ - Oncorhynchus mykiss (Rainbow trout), 96 h: 0.267 - 0.442 mg/l

12.2 Persistence and degradability

Methods for the determination of biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulation potential

This material does not bioaccumulate.

12.4 Mobility in soil

No data available

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

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 oxidizers (solid) in Packing Group II when inner packagings are not over 1.0 kg (2.2 pounds) net capacity each, packed in a strong outer packaging.

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

| | |
|--------------------------------|---|
| Proper Shipping Name | Potassium permanganate |
| Hazard Class | 5.1 |
| UN/NA | UN1490 |
| Packing Group | II |
| NEAREG | Guide #140 |
| Packaging Authorization | Non-Bulk: 49 CFR 173.212; Bulk: 173.240 |
| Packaging Exceptions | 49 CFR 173.152 |

IMO/IMDG (Water Transportation)

| | |
|-----------------------------|------------------------|
| Proper Shipping Name | Potassium permanganate |
| Hazard Class | 5.1 |
| UN/NA | UN1490 |
| Packing Group | II |
| Marine Pollutant | YES |
| EMS Number | F-H, S-Q |

ICAO/IATA (Air Transportation)

| | |
|-----------------------------|---|
| Proper Shipping Name | 5.1 |
| Hazard Class | UN1490 |
| UN/NA | II |
| Packing Group | 5.1 |
| Quantity Limitations | 49 CFR 175.27 and 175.75 - Cargo Aircraft Only: 25 kg; Passenger Aircraft: 5 kg |

RID/ADR (Rail Transportation)

| | |
|-----------------------------|--------|
| Proper Shipping Name | 5.1 |
| Hazard Class | UN1490 |
| UN/NA | II |
| Packing Group | 5.1 |

Drum Label(s)



Marine Pollutant placard for IMO/IMDG & ICAO/IATA

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.

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.

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.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b)) and 1310.4(f)(2)) and Chemical Code Number
Potassium Permanganate (CAS #7722-64-7), DEA code #6579

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number
Potassium Permanganate (CAS #7722-64-7): exemption - 15% by weight in mixtures

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals
Potassium Permanganate (CAS #7722-64-7)

Note: This material may not be exported from the U.S. without prior DEA filing/permission.

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories

May intensify fire; oxidizer Causes skin irritation and serious eye damage
Harmful if swallowed Suspected of damaging the unborn child

SARA 313 Information: Potassium Permanganate (CAS #7722-64-7) is subject to the reporting levels established by 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): This product contains the following CERCLA reportable substance:
Potassium Permanganate (CAS #7722-64-7): RQ = 45.5 kg (100 lb).

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)

Potassium permanganate (CAS #7722-64-7) is a Hazardous Substance.

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

⚠️ WARNING: This product will expose you to Potassium Permanganate, which is known to the state of California to cause birth defects or reproductive harm. For more information go to www.P65Warnings.ca.gov.

Other U.S. State Inventories

Potassium Permanganate (CAS #7722-64-7) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: CA, DE, MA, NJ, NY, PA, RI.

Canada

WHMIS Hazard Classification

May intensify fire; oxidizer Causes severe skin burns and eye damage
Harmful if swallowed Causes severe damage to the respiratory tract

Canadian National Pollutant Release Inventory (NPRI): This material is not listed on the NPRI.

European Economic Community

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

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 (KECI) | 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 | 2 |
| FLAMMABILITY | 0 |
| PHYSICAL HAZARD | 2 |
| PERSONAL PROTECTION | F |

F = Safety glasses, gloves, apron & dust mask

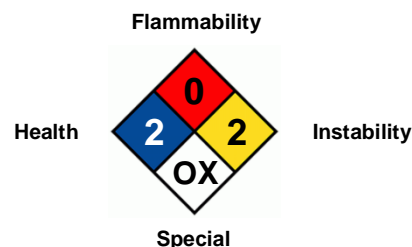
HMIS Hazard Rating Legend

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 | LD₅₀ | 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 |
| EC₅₀ | 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 |
| ErC₅₀ | 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 |
| IC₅₀ | 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 |
| LC₅₀ | 50% Lethal Concentration | WHMIS | Workplace Hazardous Materials Information System |
| LD₅₀ | 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.

Revision date: 23 October 2020, Version 3

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