

Safety Data Sheet

Isophorone

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Isophorone

Synonym(s): 3,5,5-Trimethyl-2-cyclohexen-1-one

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

General use: Industrial and laboratory applications

Uses advised against: No data available

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

Flammable Liquid - Category 4 [H227]

Acute Toxicity, Oral - Category 4 [H302]

Acute Toxicity, Dermal - Category 4 [H312]

Eye Irritation - Category 2A [H319]

Specific Target Organ Toxicity, Single Exposure - Category 3 (STOT SE 3) [H335]

Carcinogenicity - Category 2 [H351]

2.2 Label elements

Hazard symbol(s):



GHS07



GHS08

Signal word: Warning

Hazard statement(s):

H227 - Combustible liquid

H302 - Harmful if swallowed

H312 - Harmful in contact with skin

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H351 - Suspected of causing cancer

Precautionary statements:

[Prevention]

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P261 - Avoid breathing mist or vapor.

P264 - Wash hands and other skin areas exposed to material thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

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

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

[Response]

P301 + P330 + P331 + P310 - IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER or doctor.

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.

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

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P308 + P313 - IF exposed or concerned: Get medical attention.

P321 + P312 - Specific treatment: Call a POISON CENTER or doctor if you feel unwell. Refer to Section 4 of this SDS.

P337 + P313 - If eye irritation persists: Get medical attention.
P363 - Wash contaminated clothing before reuse.
P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide for extinction.
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

No data available

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

% by Weight	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
97 - 100	Isophorone	78-59-1	201-126-0	606-012-00-8	H227, H302, H312, H319, H335, H351

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. If unconscious, 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 the victim feels unwell, seek medical attention.

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

4.2 Most important symptoms and effects, both acute and delayed

Potential health symptoms and effects

Eyes: Causes serious eye irritation with inflammation, swelling, pain, tearing, blurred vision and possible burns. May cause corneal injury. Lachrymator! Vapor or mist can cause eye irritation.

Skin: Harmful if absorbed through the skin. May cause skin irritation with localized redness, itching and discomfort. Prolonged and repeated contact with unprotected skin may cause drying and cracking of the skin and dermatitis.

Inhalation: Harmful if inhaled. Causes irritation of the respiratory tract and mucous membranes. Symptoms may include burning sensation, headache, sore throat, laryngitis, wheezing, cough and breathing difficulty. May cause narcotic effects, including headache, dizziness, weakness and unconsciousness. May cause central nervous system depression. May cause a drop in blood pressure. Prolonged and repeated inhalation may damage the respiratory system, including the lungs.

Ingestion: Harmful if swallowed. Cause irritation of the digestive tract with nausea, vomiting, abdominal pain and diarrhea. May affect the liver and kidneys.

Chronic: Individuals with pre-existing skin conditions and respiratory disorders may be more susceptible to the effects of this product. Prolonged or repeated skin contact may cause drying or cracking of the skin, dermatitis or aggravate existing skin conditions. Chronic inhalation may damage the respiratory system. May cause damage to the liver and kidneys. Isophorone is a confirmed animal carcinogen. Prolonged or repeated exposure may cause adverse reproductive effects. Refer to Section 11.2.

Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal. Organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain.

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: No data available

5.2 Special hazards arising from the substance or mixture

Combustible liquid! 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. Exposure to ignition sources can ignite vapors, causing a flash fire. 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. 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. Spill creates a slip hazard.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

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

6.4 Reference to other sections

For indications about waste treatment, see Section 13.

SECTION 7 – STORAGE AND HANDLING

7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Do not get in eyes or on skin or clothing. Do not inhale mist or vapor. NO SMOKING. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Open containers slowly to control possible pressure release. 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. Do not store in direct sunlight. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers are hazardous when empty as they contain product residue. Do not cut, drill, weld, braze, solder grind or perform similar operations on or near empty containers. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Keep out of reach of children.

7.3 Specific end uses

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

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values

CAS Number	Ingredient	OSHA PEL	ACGIH TLV	NIOSH
78-59-1	Isophorone	25 ppm; 140 mg/m ³ TWA	5 ppm TWA, ceiling	45 ppm; 23 mg/m ³ TWA; 200 ppm IDLH

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 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 to pale yellow liquid
Odor	Camphor-like
Odor Threshold	0.2 ppm (v/v)
Molecular Weight	138.21 g/mol
Chemical Formula	C ₉ H ₁₄ O
pH	No data available
Freezing/Melting Point	- 8.1 °C (17.42 °F)
Initial Boiling Point	215 °C (419 °F)
Evaporation Rate	0.2 [n-BuOAc = 1]
Flammability (solid, gas)	Not applicable
Flash Point	83.9 °C (183 °F)
Autoignition Temperature	460 °C (860 °F)
Decomposition Temperature	No data available
Lower Explosive Limit (LEL)	0.8% (v)
Upper Explosive Limit (UEL)	3.8% (v)
Vapor Pressure	0.38 mm Hg @ 25 °C
Vapor Density	4.77 [Air = 1]
Specific Gravity	0.93 @ 20 °C
Viscosity	No data available
Solubility in Water	Slightly miscible
Partition Coefficient (n-octanol/water)	log P _{ow} = 1.67
Oxidizing Properties	Not applicable
Explosive Properties	Not applicable
Volatiles by Weight @ 21 °C	No data available

9.2 Other Data

No data available

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity

This material is stable under normal handling conditions and use.

10.2 Chemical Stability

This material is stable under recommended storage conditions. Keep away from direct sunlight.

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

Avoid temperature extremes, hot surfaces, contact with incompatible materials. Avoid use in confined spaces. Avoid direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents, strong acids, strong bases, amines

10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity

LD₅₀, rat: 1,500 mg/kg (male and female)

Acute inhalation toxicity

LC₅₀, rat: 7 mg/l - 4 h (male)

Acute dermal toxicity

LD₅₀, rabbit: 1,200 mg/kg (male and female)

Skin irritation

May cause skin irritation.

Eye irritation

Causes serious eye irritation.

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

May cause respiratory irritation, drowsiness or dizziness.

Aspiration hazard

No data available

11.2 Further information

Isophorone (CAS #78-59-1): ACGIH A3 carcinogen: *Confirmed animal carcinogen with unknown relevance to humans*. Not listed as a carcinogen by IARC, NTP or OSHA. The EPA has classified isophorone as Group C, possible human carcinogen. Isophorone has caused cancer in some laboratory test animals. Kidney effects and tumors have been observed in some male rats, but these effects are believed to be species specific and unlikely to occur in humans.

No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any 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

Large spills or discharges of this material may be harmful to aquatic life.

Toxicity to fish: LC₅₀ - Pimephales promelas (Fathead minnow), flow-through test, 96 h: 228 mg/l

Toxicity to aquatic invertebrates: EC₅₀ - Daphnia magna (water flea), static test, 48 h: 120 mg/l

Toxicity to aquatic plants: EC₅₀ - Desmodesmus subspicatus (Green algae), static test, 72 h: 475 mg/l

Toxicity to bacteria: EC₁₀ - Pseudomonas putida (Bacteria), 18 h: 435 mg/l

12.2 Persistence and degradability

This product is readily biodegradable.

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

This substance is not persistent, bioaccumulative and toxic (PBT) and not very persistent and very bioaccumulative (vPvB).

12.6 Other effects

Additional ecological information

Do not allow material to run into surface waters, wastewater or soil.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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

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

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

SECTION 14 – TRANSPORTATION INFORMATION

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

Limited quantity for flammable liquids in 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) - Bulk

Proper Shipping Name	Flammable liquids, n.o.s. (Isophorone)
Hazard Class	3
UN/NA	UN1993
Packing Group	III
NEAREG	Guide #128
Packaging Authorization	Non-Bulk: 49 CFR 173.202; Bulk: 173.243
Packaging Exceptions	49 CFR 173.150
IMO/IMDG (Water Transportation)	Not regulated for transport (Consult IMO regulations before transporting ocean bulk.)
ICAO/IATA (Air Transportation)	Not regulated for transport
RID/ADR (Rail Transportation)	Not regulated for transport

Drum Label(s)



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

Combustible liquid	Causes serious eye irritation	Suspected of causing cancer
Harmful if swallowed and in contact with skin	May cause respiratory irritation	

SARA 313 Information: None of the components of the product exceed the threshold (de minimis) reporting levels 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 the following CERCLA reportable substance: Isophorone (CAS 78-59-1): RQ = 2,268 kg (5,000 lb)

Clean Air Act (CAA)

Isophorone (CAS #78-59-1) is a Hazardous Air Pollutant (HAP) 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)

Isophorone (CAS #78-59-1) is a Hazardous Substance.
Isophorone (CAS #78-59-1) is a Priority Pollutant.
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

Isophorone (CAS #78-59-1) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: CA, DE, ID, IL, ME, MA, MN, NJ, NY, PA, RI, WA, WI, WV.

Canada

WHMIS Hazard Classification

Combustible liquid Harmful if swallowed and in contact with skin Causes serious eye irritation May cause respiratory irritation

Canadian National Pollutant Release Inventory (NPRI): None of the components of this material 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 (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		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

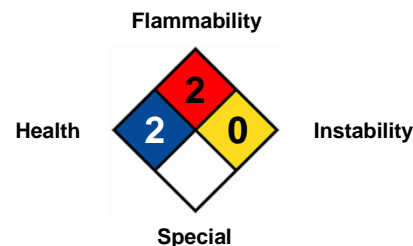
* = Chronic Health Hazard

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)

LD₅₀ Lowest Lethal Dose

mppcf Millions of Particles Per Cubic Foot

CAS	Chemical Abstract Services
CFR	Code of Federal Regulations
COC	Cleveland Open Cup
DOT	Department of Transportation
EC₅₀	Half maximal effective concentration
EMS	Emergency Response Procedures for Ships Carrying
EPA	Environmental Protection Agency
ErC₅₀	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
HCS	Hazard Communication Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IC₅₀	Half Maximal Inhibitory Concentration
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
LC₅₀	50% Lethal Concentration
LD₅₀	50% Lethal Dose

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
PEL	Permissible exposure limit
PMCC	Pensky-Martens Closed Cup
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
RID	Dangerous Goods by Rail
RQ	Reportable Quantity
TCC/Tag	Tagliabue Closed Cup
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time-weighted Average
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulating
WHMIS	Workplace Hazardous Materials Information System

DISCLAIMER OF RESPONSIBILITY

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

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