

## Chemical Safety Data Sheet MSDS / SDS

**CIS-1,3-DICHLOROPROPENE**Revision Date:2023-04-30 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : CIS-1,3-DICHLOROPROPENE  
CBnumber : CB9680157  
CAS : 10061-01-5  
EINECS Number : 233-195-8  
Synonyms : cis-1,3-DICHLOROPROPENE, 1,3-CIS-DICHLOROPROPENE

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

Flammable liquids, Category 3  
Acute toxicity - Category 3, Oral  
Acute toxicity - Category 3, Dermal  
Skin irritation, Category 2  
Eye irritation, Category 2  
Skin sensitization, Category 1  
Acute toxicity - Category 4, Inhalation  
Aspiration hazard, Category 1  
Specific target organ toxicity – single exposure, Category 3  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

**Label elements****Pictogram(s)**

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Signal word

Danger

**Hazard statement(s)**

H225 Highly Flammable liquid and vapour

H226 Flammable liquid and vapour

H301 Toxic if swallowed

H304 May be fatal if swallowed and enters airways

H311 Toxic in contact with skin

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation

H331 Toxic if inhaled

H332 Harmful if inhaled

H335 May cause respiratory irritation

H341 Suspected of causing genetic defects

H351 Suspected of causing cancer

H370 Causes damage to organs

H373 May cause damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

H412 Harmful to aquatic life with long lasting effects

**Precautionary statement(s)**

P201 Obtain special instructions before use.

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

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

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

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

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

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P311 Call a POISON CENTER or doctor/physician.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P391 Collect spillage. Hazardous to the aquatic environment

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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

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P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

**Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

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

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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

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

P273 Avoid release to the environment.

#### **Response**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

P370+P378 In case of fire: Use ... to extinguish.

P301+P316 IF SWALLOWED: Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P316 Get emergency medical help immediately.

P361+P364 Take off immediately all contaminated clothing and wash it before reuse.

P332+P317 If skin irritation occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.

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

P333+P317 If skin irritation or rash occurs: Get medical help.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P317 Get medical help.

P331 Do NOT induce vomiting.

P319 Get medical help if you feel unwell.

P391 Collect spillage.

#### **Storage**

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

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

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

## Substance

Product name	: CIS-1,3-DICHLOROPROPENE
Synonyms	: cis-1,3-DICHLOROPROPENE, 1,3-CIS-DICHLOROPROPENE
CAS	: 10061-01-5
EC number	: 233-195-8
MF	: C3H4Cl2
MW	: 110.97

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### Most important symptoms and effects, both acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include local irritation of the eyes skin and respiratory tract; dermatitis, gasping, coughing, substernal pain, extreme respiratory distress, lacrimation, central nervous system depression, skin irritation, acute gastrointestinal distress with pulmonary congestion and edema. It also may cause injury to the liver, kidneys and heart. ACUTE/CHRONIC HAZARDS: This compound may cause irritation to the skin, eyes, and mucous membranes. It may also cause lacrimation. When heated to decomposition it emits toxic fumes. (NTP, 1992)

### Indication of any immediate medical attention and special treatment needed

1. FLUSH contaminating fumigants from the skin and eyes with copious amounts of water or saline for at least 15 minutes. Some fumigants are corrosive to the cornea and may cause BLINDNESS. Specialized medical treatment should be obtained promptly following removal of toxicant by copious flushing with clean water. Skin contamination may cause BLISTERING and deep chemical burns. Absorption of some fumigants across the skin may be sufficient to cause systemic poisoning in the absence of fumigant inhalation. For all these reasons, decontamination of eyes and skin must be IMMEDIATE and THOROUGH. 2. REMOVE victims of fumigant inhalation to FRESH AIR immediately. Even though initial symptoms and signs are mild, keep the victim quiet, in a semi-reclining position. Minimum physical activity limits the likelihood of pulmonary edema. 3. If victim is not breathing, clear the airway of secretions and RESUSCITATE with positive pressure oxygen apparatus. If this is not available, use chest compression to sustain respiration. If victim is pulseless, employ cardiac resuscitation. 4. If PULMONARY EDEMA is evident, there are several measures available to sustain life. Medical judgement must be relied upon, however, in the management of each case. The following procedures are generally recommended: A. Put the victim in a SITTING position with a backrest. B. Use intermittent and/or continuous positive pressure OXYGEN to relieve hypoxemia. ... C. Slowly administer FUROSEMIDE, 40 mg, or SODIUM ETHACRYNATE, 50 mg, to reduce venous load by inducing diuresis. ... D. Morphine in small doses (5-10 mg), slowly, iv to allay anxiety and

promote deeper respiratory excursions. E. Administer AMINOPHYLLINE (0.25-0.50 gm) slowly, iv. ... F. Digitalization may be considered, but there is a serious risk of arrhythmias in an anoxic and toxic myocardium. G. TRACHEOSTOMY may be necessary in some cases to facilitate aspiration of large amounts of pulmonary edema fluid. H. Epinephrine, atropine, and expectorants are generally not helpful, and may complicate treatment. I. Watch for RECURRENT PULMONARY EDEMA, even up to 2 weeks after the initial episode. Limit victim's physical activity for at least 4 weeks. Severe physical weakness usually indicates persistent pulmonary injury. Serial pulmonary function testing may be useful in assessing recovery. 5. Combat SHOCK by placing victim in the Trendelenburg position and administering plasma, whole blood, and/or electrolyte and glucose solutions intravenously, with great care, to avoid pulmonary edema. Central venous pressure should be monitored continuously. Vasopressor amines must be given with great caution, because of the irritability of the myocardium. 6. Control CONVULSIONS. Seizures are most likely to occur in poisonings by methyl bromide, hydrogen cyanide, acrylonitrile, phosphine, and carbon disulfide. ... Fumigant poisoning

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## SECTION 5: Firefighting measures

### Extinguishing media

Fires involving this compound can be controlled using a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

### Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available, however literature sources indicate that this material is flammable. (NTP, 1992)

### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

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## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemico-physical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

no data available

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	Oil
Colour	Colourless
Odour	CHLOROFORM-LIKE ODOR
Melting point/freezing point	-85 °C.

Boiling point or initial boiling point and boiling range	103.8 - 105.2 °C. Atm. press.:102.8 kPa.
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	28.5 °C. Atm. press.:772 mm Hg.
Auto-ignition temperature	555 °C. Atm. press.:1 atm.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Chloroform (Soluble), Methanol (Slightly)
Partition coefficient n-octanol/water	log Pow = 1.82. Temperature:20 °C.
Vapour pressure	111.6 at 50 °C, 687.8 at 100 °C (Wilding et al., 2002)
Density and/or relative density	1.221. Temperature:23 °C.
Relative vapour density	1.4 AT 37.8 DEG C (AIR= 1)
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Highly flammable. Insoluble in water.

### Chemical stability

no data available

### Possibility of hazardous reactions

A dangerous fire hazard when exposed to heat, flame, or oxidizers. CIS-1,3-DICHLORO-1-PROPENE may be sensitive to light. Reacts with aluminum, aluminum alloys, other active metals and some metal salts and halogens. Can react vigorously with oxidizing materials. (NTP, 1992)

### Conditions to avoid

no data available

### Incompatible materials

Cis-trans mixture/ reacts readily with aluminum, aluminum alloys, other active metals & some metal salts & halogens.

### Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 - rat (male) - 93 mg/kg bw. Remarks:Slope = 6.4.

- Inhalation: LC50 - rat (male) - 670 ppm.
- Dermal: LD50 - rat (male) - 1 068 mg/kg bw.

#### **Skin corrosion/irritation**

no data available

#### **Serious eye damage/irritation**

no data available

#### **Respiratory or skin sensitization**

no data available

#### **Germ cell mutagenicity**

no data available

#### **Carcinogenicity**

A3: Confirmed animal carcinogen with unknown relevance to humans. 1,3-Dichloropropene

#### **Reproductive toxicity**

no data available

#### **STOT-single exposure**

no data available

#### **STOT-repeated exposure**

no data available

#### **Aspiration hazard**

no data available

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## SECTION 12: Ecological information

### **Toxicity**

Toxicity to fish: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 1.6 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: LC50 - *Daphnia magna* - 1.4 mg/L - 48 h.

Toxicity to algae: ErC50 - *Scenedesmus capricornutum* - 3.1 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 279 mg/L - 10 min. Remarks:Respiration rate.

### **Persistence and degradability**

AEROBIC: The reported half-lives for 1,3-dichloropropene (isomer not specified) were 12 days in Catlin silt loam soil and 54 days in Fuquay loamy sand soil(1). The major nonvolatile degradates isolated from the soils were cis/trans-3-chloroprop-2-en-1-ol (3-chloroallyl alcohol) and cis/trans-3-chloroprop-2-enoic acid (3-chloroacrylic acid)(1). Numerous naturally-occurring carboxylic acids were also identified as degradates(1). Twelve weeks after radiolabeled cis-1,3-dichloropropene was added to soil and stored in sealed containers, 19% remained in sandy loam and 10% remained in medium loam(2). After 20 weeks, 5% remained in sandy loam and 3% remained in the medium loam(2). The half-life of the dichloropropene was 3-4 weeks in sandy loam. The primary degradation product was cis-3-chloroallyl alcohol(2). It was possible



that some of the parent compound was lost by volatilization(2). In another study, after intensive treatment of 10 soils with cis-1,3-dichloropropene, all soils were adapted and showed enhanced biodegradation of this compound(3). Cis- and trans-1,3-dichloropropene disappeared in sandy soils (15-20 deg C, closed containers) at a rate of 2.5-3%/day (with an avg half-life of 24 days) (4). The half-life of 1,3-dichloropropene (cis and trans isomers) in 13 aerobic soils at 20 deg C ranged from 6-17 days(5).

### **Bioaccumulative potential**

An estimated BCF of 8 was calculated for cis-1,3-dichloropropene(SRC), using a log Kow of 2.06(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### **Mobility in soil**

The calculated Freundlich adsorption coefficients (Kd) for 1,3-dichloropropene (isomers not specified) were 0.23 and 0.32 for loamy sand and sand soils, respectively(1); Kd was 0.49 and 1.09 for clay soils(1). The avg max Koc values were 20 for sand, 25 for loamy sand, and 41 and 42 for two clay soils(1). The avg Koc of cis-1,3-dichloropropene in 3 soils with organic carbon contents of 3.19, 10.4, and 55.1% was 27(2). According to a classification scheme(3), Koc values from 25 to 42 suggest that cis-1,3-dichloropropene is expected to have very high mobility in soil(SRC). In 30-cm columns of sand, loamy sand, and Florida clay, 1,3-dichloropropene (isomers not specified) leached when more than 25 inches of water were applied(1); a total of 1.9% to 4.6% of the applied (unaged) radioactivity remained in the soils and 70% to 84% was found in the leachate(1). Aged (eg, 31 days) 1,3-dichloropropene (isomers not specified) residues were very mobile, with 25.6% to 32.0% of the applied radioactivity in the leachates of 30-cm columns of loamy sand soil(1). 1,3-Dichloropropene (isomers not specified) and the degradates 3-chloroallyl alcohol, chloroacrylic acid, and composite carboxylic acids (including acetic acid, oxalic acid, and propionic acid) were detected in both the leachates and the upper 2-cm soil segment extracts(1).

### **Other adverse effects**

no data available

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: no data available

IMDG: no data available

IATA: no data available

## **UN Proper Shipping Name**

ADR/RID: no data available

IMDG: no data available

IATA: no data available

## **Transport hazard class(es)**

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

## **Packing group, if applicable**

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

## **Environmental hazards**

ADR/RID: Yes

IMDG: Yes

IATA: Yes

## **Special precautions for user**

no data available

## **Transport in bulk according to IMO instruments**

no data available

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# SECTION 15: Regulatory information

## **Safety, health and environmental regulations specific for the product in question**

### **European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

### **EC Inventory**

Listed.

### **United States Toxic Substances Control Act (TSCA) Inventory**

Not Listed.

### **China Catalog of Hazardous chemicals 2015**

Not Listed.

### **New Zealand Inventory of Chemicals (NZIoC)**

Not Listed.

### **PICCS**

Not Listed.

### **Vietnam National Chemical Inventory**

Listed.

## IECSC

Not Listed.

## Korea Existing Chemicals List (KECL)

Not Listed.

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# SECTION 16: Other information

## Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.