

## Chemical Safety Data Sheet MSDS / SDS

## PERPHENAZINE

Revision Date:2026-03-21 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : PERPHENAZINE  
CBnumber : CB6687009  
CAS : 58-39-9  
EINECS Number : 200-381-5  
Synonyms : 2-{4-[3-(2-chloro-10H-phenothiazin-10-yl)propyl]piperazin-1-yl}ethan-1-ol

## 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 : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Warning

## Precautionary statements

P302+P352 IF ON SKIN: wash with plenty of soap and water.  
P301+P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P270 Do not eat, drink or smoke when using this product.  
P264 Wash skin thoroughly after handling.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

## Hazard statements

H317 May cause an allergic skin reaction  
H302 Harmful if swallowed

## SECTION 3: Composition/information on ingredients

### Substance

Product name	: PERPHENAZINE
Synonyms	: 2-{4-[3-(2-chloro-10H-phenothiazin-10-yl)propyl]piperazin-1-yl}ethan-1-ol
CAS	: 58-39-9
EC number	: 200-381-5
MF	: C21H26ClN3OS
MW	: 403.97

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## SECTION 4: First aid measures

### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

### If swallowed

After swallowing: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour).

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

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

### Protection of first-aiders

For personal protection see section 8.

### Notes to physician

No data available

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## SECTION 5: Firefighting measures

### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

## Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

## Specific hazards during fire fighting

Combustible. Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

## Hazardous combustion products

Carbon oxides

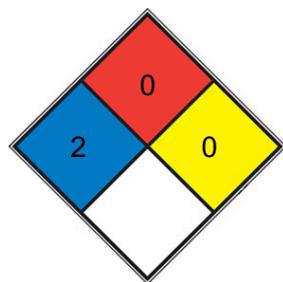
## Specific extinguishing methods

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## NFPA 704



HEALTH 2 Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N<sub>2</sub>](#))

SPEC.  
 HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

### **Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.

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## **SECTION 7: Handling and storage**

### **Handling**

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Avoidance of contact**

Acid chlorides Acid anhydrides Oxidizing agents Alkali metals Reducing agents Acids

### **Storage**

#### **Further information on storage conditions**

Keep container tightly closed in a dry and wellventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

#### **Storage class**

3, Flammable liquids

#### **Recommended storage temperature**

-20 °C

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## **SECTION 8: Exposure controls/personal protection**

### **Ingredients with workplace control parameters**

Biological occupational exposure limits

### **Engineering measures**

No data available

### **Personal protective equipment**

#### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### **Recommended Filter type**

Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Safety glasses

**Skin and body protection**

Flame retardant antistatic protective clothing.

**Hand protection****Remarks**

required

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9: Physical and chemical properties

**Information on basic physicochemical properties**

liquid

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**Color**

colorless

**Odor**

characteristic

**Odor Threshold**

No data available

**pH**

No data available

**Melting point/ range**

-98.0 °C

**Boiling point/boiling range**

64.0 - 65.0 °C (1,013 hPa)

**Flash point**

9.7 °C (10 hPa)

Method: DIN 51755 Part 1, closed cup

**Evaporation rate**

6.3

Method: Diethyl ether 1.9

Method: n-butyl acetate

**Flammability (solid, gas)**

No data available

**Flammability (liquids)**

No data available

**Burning rate**

No data available

**Self-ignition**

455.0 °C 1,013 hPa

Method: DIN 51794

**Upper explosion limit / Upper flammability limit**

36.5 %(V)

**Lower explosion limit / Lower flammability limit**

5.5 %(V)

**Vapor pressure**

128 hPa (20.0 °C)

**Relative vapor density**

1.11

**Relative density**

1.253

**Density**

0.79 g/cm<sup>3</sup> (20 °C)

**Water solubility**

soluble (20 °C)

**Partition coefficient: n-octanol/water**

log Pow: -0.77 (25 °C)

Method: (experimental) (Lit.) Bioaccumulation is not expected.

**Autoignition temperature**

455 °C

Decomposition temperature: Distillable in an undecomposed state at normal pressure.

**Viscosity, dynamic**

No data available

**Viscosity, kinematic**

0.54 - 0.59 mm<sup>2</sup>/s (20 °C)

**Flow time**

No data available

### **Explosive properties**

No data available

### **Oxidizing properties**

none

### **Molecular weight**

32.04 g/mol

### **Particle characteristics Particle size**

No data available

### **Conductivity**

< 1  $\mu\text{S}/\text{cm}$

### **Minimum ignition energy**

0.14 mJ

### **Solubility**

Practically insoluble in water, freely soluble in methylene chloride, soluble in ethanol (96 per cent). It dissolves in dilute solutions of hydrochloric acid.

### **Physical state**

Solid

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## **SECTION 10: Stability and reactivity**

### **Reactivity**

Vapors may form explosive mixture with air.

### **Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **Possibility of hazardous reactions**

No data available

### **Conditions to avoid**

Heat, flames and sparks. Warming.

### **Incompatible materials**

Acid chlorides Acid anhydrides Oxidizing agents Alkali metals Reducing agents Acids

### **Hazardous decomposition products**

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture Acute toxicity

Acute toxicity estimate Oral - 100.2 mg/kg (Calculation method)

Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapor (Calculation method)

Acute toxicity estimate Dermal - 300.4 mg/kg (Calculation method)

#### Skin corrosion/irritation

Classified based on available data. For more details, see section 2

#### Serious eye damage/eye irritation

Classified based on available data. For more details, see section 2

#### Respiratory or skin sensitization

Mixture may produce an allergic reaction.

#### Germ cell mutagenicity

Classified based on available data. For more details, see section 2

#### Carcinogenicity

Classified based on available data. For more details, see section 2

#### Reproductive toxicity

Classified based on available data. For more details, see section 2

#### Specific target organ toxicity - single exposure

Mixture causes damage to organs. - Eyes, Central nervous system

#### Specific target organ toxicity - repeated exposure

Classified based on available data. For more details, see section 2

#### Aspiration hazard

Classified based on available data. For more details, see section 2

### 11.2 Additional Information

Methyl alcohol may be fatal or cause blindness if swallowed.

Effects due to ingestion may include:., Headache, Dizziness, Drowsiness, metabolic acidosis, Coma, Seizures.

Symptoms may be delayed., Damage of the:., Liver, Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

#### Components Methanol

##### Acute toxicity

Acute toxicity estimate Oral - 100.1 mg/kg (Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Nausea, Vomiting

Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapor (Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Irritation symptoms in the respiratory tract.

Acute toxicity estimate Dermal - 300.1 mg/kg (Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

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

Skin - Rabbit

Result: No skin irritation

Remarks: (ECHA)

Remarks: Drying-out effect resulting in rough and chapped skin.

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

Eyes - Rabbit

Result: No eye irritation

Remarks: (ECHA)

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

Sensitisation test: - Guinea pig

Result: negative (OECD Test Guideline 406)

#### **Germ cell mutagenicity**

Based on available data the classification criteria are not met.

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female - Bone marrow

Result: negative

#### **Carcinogenicity**

Did not show carcinogenic effects in animal experiments.

#### **Reproductive toxicity**

Based on available data the classification criteria are not met.

#### **Specific target organ toxicity - single exposure**

Causes damage to organs. - Eyes, Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute oral toxicity - Nausea, Vomiting

Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

#### **Specific target organ toxicity - repeated exposure**

Classified based on available data. For more details, see section 2

#### **Aspiration hazard**

Classified based on available data. For more details, see section 2

#### **2-chloro-10-3-[1-(2-hydroxyethyl)-4-piperazinyl] propyl phenothiazin Acute toxicity**

LD50 Oral - Rat - 318 mg/kg

Remarks: (RTECS)

Inhalation: No data available

Dermal: No data available

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

Classified based on available data. For more details, see section 2

**Serious eye damage/eye irritation**

Classified based on available data. For more details, see section 2

**Respiratory or skin sensitization**

May cause allergic skin reaction.

**Germ cell mutagenicity**

Classified based on available data. For more details, see section 2

**Carcinogenicity**

Classified based on available data. For more details, see section 2

**Reproductive toxicity**

Classified based on available data. For more details, see section 2

**Specific target organ toxicity - single exposure**

Classified based on available data. For more details, see section 2

**Specific target organ toxicity - repeated exposure**

Classified based on available data. For more details, see section 2

**Aspiration hazard**

Classified based on available data. For more details, see section 2

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## SECTION 12: Ecological information

### Ecotoxicity

#### Components:

##### Methanol:

##### Toxicity to fish

LC50 (Lepomis macrochirus (Bluegill)): 15,400.0 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: US-EPA

##### Toxicity to daphnia and other aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 18,260 mg/l End point: Immobilization Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 202

##### Toxicity to algae/aquatic plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): ca. 22,000.0 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201

##### Toxicity to fish (Chronic toxicity)

NOEC (Oryzias latipes (Orange-red killifish)): 7,900 mg/l Exposure time: 200 h Remarks: (External MSDS)

##### Toxicity to microorganisms

IC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 209

### Persistence and degradability

#### Components:

##### Methanol:

**Biodegradability**

Result: Readily biodegradable. Biodegradation: 99 % Exposure time: 30 d Method: OECD Test Guideline 301D

**Biochemical Oxygen Demand (BOD)**

600 - 1,120 mg/g Incubation time: 5 d Remarks: (IUCLID)

**Chemical Oxygen Demand (COD)**

1,420 mg/g Remarks: (IUCLID)

**ThOD**

1,500 mg/g Remarks: (Lit.)

**BOD/ThOD**

76 % Remarks: Closed Bottle test (IUCLID)

**Stability in water**

Hydrolysis: 83 - 91 % at 19 °C(72 h) Remarks: Hydrolyzes on contact with water. Hydrolyzes readily. Degradation half life: 2.2 yr Remarks: reaction with hydroxyl radicals (IUCLID)

**Photodegradation**

Degradation (direct photolysis): 50 % Degradation half life: 17.2 d

**Bioaccumulative potential****Components:****Methanol:****Bioaccumulation**

Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 1.0 Exposure time: 72 d Temperature: 20 °C Concentration: 5 mg/l

**Partition coefficient: noctanol/water**

log Pow: -0.77 (25 °C) Method: (experimental) Remarks: (HSDB) Bioaccumulation is not expected.

**Mobility in soil****Components:****Methanol:****Stability in soil**

Remarks: Will not adsorb on soil.

**Other adverse effects****Components:****Methanol:****Results of PBT and vPvB assessment**

Substance is not persistent, bioaccumulative, and toxic (PBT).

**Additional ecological information**

Avoid release to the environment.

**2-chloro-10-3-[1-(2-hydroxyethyl)-4-piperazinyl] propyl phenothiazin:**

### **Additional ecological information**

Discharge into the environment must be avoided.

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Waste from residues**

Offer surplus and non-recyclable solutions to a licensed disposal company.

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## **SECTION 14: Transport information**

### **International Regulations**

#### **IATA-DGR**

UN/ID No. : UN 1230

Proper shipping name : Methanol solution

Class : 3

Subsidiary risk : 6.1

Packing group : II

Labels : Class 3 - Flammable liquids, Division 6.1 - Toxic substances

Packing instruction (cargo aircraft) : 364

Packing instruction (passenger aircraft) : 352

#### **IMDG-Code**

UN number : UN 1230

Proper shipping name : METHANOL SOLUTION

Class : 3

Subsidiary risk : 6.1

Packing group : II

Labels : 3 (6.1)

EmS Code : F-E, S-D

Marine pollutant : no

#### **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

National regulation GB 6944/12268

UN number : UN 1230

Proper shipping name : METHANOL

Class : 3

Subsidiary risk : 6.1

Packing group : II

Labels : 3 (6.1)

## Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15: Regulatory information

Downstream users need to comply with the conditions of safe use of the chemical, understand the environmental and health hazard and risk management measures identified on the SDS as well as the local/national regulations concerning the chemical.

### National regulatory information

#### Law on the Prevention and Control of Occupational Diseases

#### Regulations on Safety Management of Hazardous Chemicals

#### Catalogue of Hazardous Chemicals

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

#### No. / Code Chemical name / Category Threshold quantity

#### W5.3 Flammable liquids 1,000 t

#### Hazardous Chemicals for Priority Management

Not applicable under SAWS

#### Catalogue of Specially Controlled Hazardous

Listed Chemicals

#### List of Explosive Precursors

Not listed

#### Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

#### China Severely Restricted Toxic Chemicals for Import and Export

Not applicable

#### Measures on the Environmental Administration of New Chemical Substances Registration

#### Registration/Notification number

B1A222211076

#### Regulation on the Administration of Precursor Chemicals

#### Catalogue and Classification of Precursor Chemicals

Not listed

## **Regulations on the Administration of Controlled Chemicals**

### **List of Controlled Chemicals**

Not listed

## **Regulations of Ozone Depleting Substances Management**

### **List of Controlled Ozone Depleting Substances**

Not listed

### **List of Controlled Ozone Depleting Substances Import and Export**

Not listed

## **Environmental Protection Law**

### **List of Priority Controlled Chemicals**

Not listed

### **List of Key Controlled New Pollutants**

Not listed

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## SECTION 16: Other information

### **Full text of other abbreviations**

#### **ACGIH**

USA. ACGIH Threshold Limit Values (TLV)

#### **ACGIH BEI**

ACGIH - Biological Exposure Indices (BEI)

#### **GBZ 2.1-2007**

Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

#### **ACGIH / TWA**

8-hour, time-weighted average

#### **ACGIH / STEL**

Short-term exposure limit

#### **GBZ 2.1-2007 / PC-TWA**

Permissible concentration - time weighted average

**GBZ 2.1-2007 / PC-STEL AIC - Australian Invent Transport by Land of Bra bw - Body weight; CMR Standard of the German List (Canada); ECx - Conc associated with x%respo Chemical Substances (Jap response; ERG - Emerge GLP - Good Laboratory P cer; IATA - International Construction and Equipm Half maximal inhibitory c tion; IECSC - Inventory o tional Maritime Dangerou Industrial Safety and H Standardization; KECL - K tration to 50 % of a test (Median Lethal Dose); MA lution from Ships; n.o.s. No Observed (Adverse) E fect Level; NOELR - No Norm; NTP - National Toxi cals; OECD - Organizatio fice of Chemical Safety a and Toxic substance; PIC stances; (Q)SAR - (Quant (EC) No 1907/2006 of th Registration, Evaluation, Accelerating Decompositi**

## Chemical Substance Inve Thailand Existing Chemica States); UN - United Nat Transport of Dangerous WHMIS - Workplace Hazar

Permissible concentration - short term exposure limit ry of Industrial Chemicals

ANNT - National Agency for il

ASTM - American Society for the Testing of Materials

- Carcinogen, Mutagen or Reproductive Toxicant

DIN nstitute for Standardisation

DSL - Domestic Substances ntration associated with x% response

ELx - Loading rate se

EmS - Emergency Schedule

ENCS - Existing and New n)

ErCx - Concentration associated with x% growth rate cy Response Guide

GHS - Globally Harmonized System

actice

IARC - International Agency for Research on Canir Transport Association

IBC - International Code for the nt of Ships carrying Dangerous Chemicals in Bulk

IC50 ncentration

ICAO - International Civil Aviation Organiza- Existing Chemical Substances in China

IMDG - Interna- Goods

IMO - International Maritime Organization

ISHL alth Law (Japan)

ISO - International Organisation for rea Existing Chemicals Inventory

LC50 - Lethal Concenopulation

LD50 - Lethal Dose to 50% of a test population POL - International Convention for the Prevention of Pol- Not Otherwise Specified

Nch - Chilean Norm

NO(A)EC fect Concentration

NO(A)EL - No Observed (Adverse) Efbserveable Effect Loading Rate

NOM - Official Mexican ology Program

NZIoC - New Zealand Inventory of Chemfor Economic Co-operation and Development

OPPTS - Ofd Pollution Prevention

PBT - Persistent, Bioaccumulative S - Philippines Inventory of Chemicals and Chemical Subtative) Structure Activity Relationship

REACH - Regulation European Parliament and of the Council concerning the uthorisation and Restriction of Chemicals

SADT - Selfn Temperature

SDS - Safety Data Sheet

TCSI - Taiwan tory

TDG - Transportation of Dangerous Goods

TECI s Inventory

TSCA - Toxic Substances Control Act (United ons)

UNRTDG - United Nations Recommendations on the oods

vPvB - Very Persistent and Very Bioaccumulative

ous Materials Information System

### 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.

