



Haihang Industry Co., Ltd.

## MATERIAL SAFETY DATA SHEET

### Caprylhydroxamic Acid

#### **1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

##### **Identification of the substance or preparation:**

Product Name:	1,3-dichloropropene
Manufactured By:	Haihang Industry Co., Ltd. No. 100 South Gongye road, Jinan City, Shandong Province, China. P.C.: 250100
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#### **2. COMPOSITION/INFORMATION ON INGREDIENTS**

##### **1,3-dichloropropene**

CAS Number : 542-75-6

Symbols : N, T

**Concentration : >= 95,00 %**

##### **Epoxidised soya bean oil**

**Concentration : 2,00 %**

#### **3. HAZARDS IDENTIFICATION**

Hazardous product for the human health and the aquatic environment.

Acts on the nervous system.

Sensitising product

Flammable

In case of decomposition, releases dangerous products.

#### **4. FIRST-AID MEASURES**

##### **General recommendations**

Strict hygiene during and at the end of working shifts.

Personal protective equipment required for rescuers (see section 8).

Do not dry soiled clothing near an open flame or incandescent heat source.

Dispose of contaminated clothing in a well-ventilated area.



## **Effects**

### Main effects

Irritating to mucous membrane, eyes and skin.

Risk of liver, kidney and nervous system effects.

The consumption of alcoholic beverages potentiates toxic effects.

Odor/odour threshold: 1 to 5 ppm.

### Inhalation

Nose and throat irritation.

At high concentrations, cough and difficulty in breathing.

At high concentrations, risk of chemical pneumonitis, pulmonary (o)edema.

At high concentrations, feelings of intoxication, restlessness, dizziness, nausea, vomiting, drowsiness

In case of repeated or prolonged exposure: headaches, fatigue.

In case of repeated or prolonged exposure: risk of liver and renal effects.

### Eyes contact

Severe eye irritation, watering and redness.

Risk of temporary eye lesions.

### Skin contact

The product can be absorbed by intact skin.

Painful irritation, redness and swelling of the skin.

### Risk of burns.

In case of repeated contact : dry and chapped skin, risk of chronic dermatitis.

In case of repeated contact: risk of allergic dermatitis.

### Ingestion

Breath smells of chloroform.

Severe irritation of the mouth, throat, oesophagus and stomach.

Nausea, vomiting, abdominal cramps and diarrhea.

Feelings of intoxication, restlessness, dizziness and drowsiness.

Risk of convulsions or loss of consciousness.

Risk liver and kidney alterations.

## **First aid**

### Inhalation

Remove the subject from the contaminated area as soon as possible; transport him/her lying down, with the head higher than the body, to a quiet, uncontaminated and well-ventilated location..

Oxygen or cardiopulmonary resuscitation if necessary.

Keep warm (blanket).

Consult with a physician in case of respiratory and nervous symptoms.



Eyes contact

Flush eyes with running water for 15 minutes, while keeping the eyelids wide open.

Consult with an ophthalmologist in all cases.

Skin contact

Remove contaminated shoes, socks and clothing; wash the affected skin with soap and water.

Keep warm (blanket), provide clean clothing.

Consult with a physician in case of persistent pain or redness.

Ingestion

General recommendations

Consult with a physician immediately in all cases.

Take to hospital.

If the subject is completely conscious:

Rinse mouth with fresh water.

Do not give anything to drink.

Do not induce vomiting.

If the subject presents nervous, respiratory or cardiovascular disorders: administer oxygen.

If the subject is unconscious:

Classical resuscitation measures.

**Medical treatment**

General informations

Do not give adrenergic drugs.

Inhalation

Pulmonary resuscitation (oxygen therapy).

Prevention or treatment of pulmonary (o)edema and bacterial secondary infection.

Rest and 48 hours medical surveillance.

Eyes contact

On the advice of the ophthalmologist.

Skin contact

Usual treatment for burns.

Ingestion

Pulmonary resuscitation (oxygen therapy).

If necessary, tracheal intubation.

If necessary, gastric lavage with a slurry of activated charcoal.

Surveillance of hepatic, renal and central nervous system functions.

**5. FIRE-FIGHTING MEASURES**

**Common extinguishing means**

Powder



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Water spray

Foam, AFFF.

CO<sub>2</sub>

### Specific hazards

Flammable (see section 9).

Gas/vapours are heavier than air and so may travel along the ground; remote ignition possible.

Formation of dangerous gas/vapours in case of decomposition (see section 10).

### Protective measures in case of intervention

Evacuate all non-essential personnel.

Fire fighters must wear fire resistant personnel protective equipment.

Wear self contained breathing apparatus when in close proximity or in confined spaces.

Protect intervention team with water spray when approaching the fire.

Intervention only by capable personnel who are trained and aware of the hazards of the product.

### Other precautions

If safe to do so, remove the exposed containers, or cool with large quantities of water.

Disperse gas/vapours with water spray.

Flood the product with water.

Avoid propagating the fire, when directing the extinguishing means in a jet on the surface of the burning liquid.

## **6. ACCIDENTAL RELEASE MEASURES**

### Precautions

If safe to do so, without over exposing anyone, try to stop the leak.

Eliminate all sources of ignition, and do not generate flames or sparks.

Wear self-contained breathing apparatus in confined spaces/if oxygen depletion/in case of significant emissions.

Follow the protective measures given in section 5.

Follow the protective measures given in section 8.

Ventilate the premises.

### Cleanup methods

Remove the product with an inert absorbent (sand, kieselguhr, vermiculite, ...).

If possible, dam large quantities of liquid with sand or earth.

Place everything into a closed, labelled container compatible with the product. Because of the contamination risk, the collected material should be isolated in a safe place.

For disposal methods, refer to section 13.

Clean the area with large quantities of water.



### **Precautions for protection of the environment**

Immediately notify the appropriate authorities in case of discharge.  
Do not discharge into the environment (sewers, rivers, soils, ...).

## **7. HANDLING AND STORAGE**

### **Handling**

Carry out all operations in closed piping circuits and equipment.  
Do not use compressed air for transferring or handling the product.  
Preferably transfer by pump or gravity.  
Purge piping circuits and equipment with nitrogen.

### **Storage**

In a ventilated, cool area.  
Protect from direct sunlight.  
Keep away from reactive products (see section 10).  
Keep away from ignition and heat sources.  
Under inert gas.  
Containment bund around storage containers and transfer installation.

### **Other precautions**

No open flames or sparks, no smoking.  
Provide electrical equipment safe for hazardous locations.  
Grounded equipment.  
Warn people about the dangers of the product.

### **Packaging**

Steel  
Stainless steel.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Engineering controls**

Premises ventilation.  
Provide local ventilation suitable for the emission risk.  
Maintain employee exposures to levels below the applicable exposure limits.

### **Authorized limit values**

#### **1,3-dichloropropene**

TLV (ACGIH-USA) 2001

TWA = 1 ppm

TWA = 4,5 mg/m<sup>3</sup>

Remark: Skin



### **Respiratory protection**

In case of emissions, face mask with type A cartridge.

Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.

### **Hand protection**

Protective gloves:

Recommended materials: polyvinylalcohol, Viton ,

### **Eye protection**

If risk of splashing, chemical proof goggles/face shield.

Wear protective goggles for all industrial operations.

### **Skin protection**

Apron/boots of neoprene if risk of splashing.

### **Other precautions**

Shower and eye wash stations.

Consult the industrial hygienist or the safety manager for the selection of personal protective equipment suitable for the working conditions.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** liquid

**Color/Colour:** colorless/colourless

**Odor/Odour:** reminds one of chloroform.

### **Change of state**

Freezing point: -60 Cel

Boiling point/range (1013 mbars):108 Cel

**Flash point**= 35°C

Method: closed cup

### **Flammability**

Upper limit 14,5 %(V)

Lower limit 5,3 %(V)

**Auto-flammability :** No data

**Vapor/vapour pressure:** 32 mbar

temperature 20 Cel

### **Density**

Specific gravity = 1,22

**Vapor/vapour density (air=1):** = 3,8

(Pure vapo(u)r )

### **Solubility**

Soluble in Water: 2,8 g/l



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temperature 20 Cel

Most organic solvents

Greases

**pH**

Neutral (aqueous extract)

**Partition coefficient P (n-octanol/water)**

log P o/w 1,41

(Cis )

log P o/w 1,63

(Trans )

log P o/w 1,98

**Viscosity:** 0,78 mPa.s

**Decomposition temperature:** 108 Cel

**Danger of explosion**

Remark: Explosion possible with gas/vapour and air mixtures (see also section 10)

**Oxidizing properties**

Negligible

## **10. STABILITY AND REACTIVITY**

**Stability**

Stable under certain conditions (see below).

Decomposition produces dangerous gases, upon contact with flames or hot metallic surfaces.

**Conditions to avoid**

Direct sunlight

Naked flames, sparks.

**Materials to avoid**

Oxidizing agents

Light metals

Salts of metals

Metallic alloys

**Hazardous decomposition products**

Carbon monoxide

Hydrochloric acid.

Phosgene

**Other information**

Plastic materials may deteriorate on contact with the product.

## **11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

Oral route, LD 50, rat, 127 mg/kg



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Dermal route, LD 50, rabbit, 504 mg/kg

Inhalation, LC 50, 4 h, rat, from 2,7 - 3,3 mg/l

#### Irritation

rabbit, corrosive (skin)

rabbit, irritant (eyes)

rat, irritant (respiratory tract)

#### Sensitization

guinea pig, sensitizing (skin)

#### Chronic toxicity

Inhalation, various species, Target organ: liver / kidney / central nervous system / respiratory tract,  $\geq 0,15$  mg/l , observed effect

Oral route, various species, Target organ: kidney, liver / central nervous system / respiratory tract / hematology system,  $\geq 2$  mg/kg, observed effect

In vitro, mutagenic effect

In vivo, No effect on reproduction / no mutagenic effect

Oral route, rat, Carcinogenic effect

Oral route, mouse, Carcinogenic effect

#### Comments

Toxic effect by oral route

Harmful effect by dermal route and inhalation

Corrosive effect for the skin

Irritant effect for the eyes and respiratory tract

Sensitizer effect for the skin

Risk of effect on the kidney, the liver and the mucous membranes and the hematological system

Risk of the central nervous system effect

The carcinogenic effect found in animals is not demonstrated in human

## 12. ECOLOGICAL INFORMATION

#### Acute ecotoxicity

Fishes, Salmo gairdneri, LC 50, 96 h, 3,5 mg/l

Conditions: fresh water

Fishes, Stizostedion vitreum, LC 50, 96 h, 1,08 mg/l

Conditions: fresh water

Fishes, Cyprinodon variegatus, LC 50, 96 h, 1,8 mg/l

Conditions: salt water

Crustaceans, Daphnia magna, EC 50, 48 h, 6,2 mg/l

Conditions: fresh water

Crustaceans, Mysidopsis bahia, EC 50, 96 h, 0,8 mg/l

Conditions: salt water



Algae, Selenastrum capricornutum, EC 50, 96 h, 4,95 mg/l

Conditions: fresh water

Algae, Skeletonema costatum, EC 50, 96 h, 1 mg/l

Conditions: salt water

## Chronic ecotoxicity

Fishes, Poecilia reticulata, LC 50, 14 day, 0,5 mg/l

Fishes, Pimephales promelas, NOEC, 28 day, 0,18 mg/l

Conditions: fish embryos

## Mobility

Air, Henry's law constant (H) from 0,8 - 360 Pa.m<sup>3</sup>/mol

Conditions: 20 °C

Water, evaporation, t 1/2 < 1 hour(s)

Conditions: experimental concentration: 1 ppm

Water, evaporation, t 1/2 > 1 day(s)

Conditions: calculated value from mathematical model / river / pond

Soil/sediments, log KOC from 1,3 - 1,6

Result: significant evaporation and percolation

Soil/sediments, t 1/2 from 3 - 70 day(s)

Result: significant evaporation

Conditions: various types of soil

## Abiotic degradation

Air, indirect photo-oxidation, t 1/2 from 7 - 50 hour(s)

Conditions: sensitizer: OH radicals

Air, indirect photo-oxidation, t 1/2 from 12 - 74 day(s)

Conditions: sensitizer: O<sub>3</sub>

Water, hydrolysis, t 1/2 = 4 day(s), 25 °C

Conditions: slightly acid pH

Degradation's products: 3-chloroallyl alcohol

Water

Result: non-significant photolysis

Soil, hydrolysis

## Biotic degradation

Aerobic, test: intrinsic biodegradability, 55 %, 7 day(s)

Conditions: adapted culture

Aerobic, test: intrinsic biodegradability, 85 %, 7 day(s)

Conditions: adapted culture

## Potential for bioaccumulation

BCF 0,86

Conditions: calculated value

log Po/w from 1,41 - 1,98

## Comments



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Toxic for aquatic organisms.

Nevertheless, hazard for the environment is limited due to product properties:  
low bioaccumulation potential.  
considerable volatility.  
weak persistence (global half-life: ca. 2 months).

## **13. DISPOSAL CONSIDERATIONS**

### **Waste treatment**

Dispose in compliance with local/federal and national regulations.  
Small quantities.  
Send the product to an authorized hazardous waste incinerator.

### **Packaging treatment**

Containers that cannot be cleaned must be treated as waste.

## **14. TRANSPORT INFORMATION**

### **UN Number 2047**

IATA Class: 3

Packing group: II

Hazard label: FLAMMABLE LIQUID

## **15. REGULATORY INFORMATION**

OSHA: Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for material is 10,000 lbs.

EU NUMBER: 201-152-2

NUMBER IN ANNEX 1 OF DIR 67/548: Not listed in annex 1.

EU CLASSIFICATION: N/Av

R: 11-20/22

S: 16-24

## **16. OTHERS**

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.