

SAFETY DATA SHEETS

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According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 10, 2017

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1. Identification

1.1 GHS Product identifier

Product name 1,3-Propanesultone

1.2 Other means of identification

Product number -
Other names 1,3-Propane Sultone

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only. 1,3-Propane sultone is used as a chemical intermediate to introduce sulfopropyl groups into molecules and to confer water solubility and anionic character.
Uses advised against no data available

1.4 Supplier's details

Company Nanjing Chemical Material Corp.
Address No.5 New Model Road, Nanjing,China
Telephone 0086-25-83172807
Fax 0086-25-83304509
Web www.njchm.com

1.5 Emergency phone number

Emergency phone number -
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4
Acute toxicity - Dermal, Category 4
Carcinogenicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s) H302 Harmful if swallowed

H312 Harmful in contact with skin

H350 May cause cancer

Precautionary statement(s)
Prevention

P264 Wash ... thoroughly after handling.

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

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

P201 Obtain special instructions before use.

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

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/...if you feel unwell.

P330 Rinse mouth.

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

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

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

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

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

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
1,3-Propanesultone	1,3-Propanesultone	1120-71-4	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Wear protective gloves when administering first aid. Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention if skin irritation occurs.

In case of eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer for medical attention.

If swallowed

Rinse mouth. Seek medical attention if you feel unwell.

4.2 Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact
Symptoms: Irritation eyes, skin, respiratory system; [potential occupational carcinogen]
Target Organs: Eyes, skin, respiratory system (NIOSH, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

5. Fire-fighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]:
SMALL FIRE: Dry chemical, CO₂ or water spray. LARGE FIRE: Dry chemical, CO₂, alcohol-resistant foam or water spray. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]:
Combustible material: may burn but does not ignite readily. When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Vacuum with specialist equipment (See Notes) or carefully sweep into sealable containers. If appropriate, moisten first to prevent dusting. If liquid: collect leaking liquid in sealable containers as far as possible. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrester (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/

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Dry. Well closed. Separated from food and feedstuffs. 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/

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

NIOSH considers propane sultone to be a potential occupational carcinogen.

NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration.

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment

(PPE)**Eye/face protection**

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. 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

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	Clear Crystals
Colour	COLORLESS LIQ OR WHITE CRYSTALS
Odour	Foul odor above 31.11°C.
Melting point/ freezing point	263°C(lit.)
Boiling point or initial boiling point and boiling range	180°C/30mmHg(lit.)
Flammability	Combustible Solid Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	-6°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:Slightly soluble
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	0.00237mmHg at 25°C
Density and/or relative density	1.392g/mL at 25°C(lit.)
Relative vapour density	no data available
Particle characteristics	no data available

10. Stability and reactivity**10.1 Reactivity**

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

PROPANE SULTONE reacts slowly with water to give 3-hydroxopropanesulfonic acid. This reaction may be accelerated by acid. May react with strong reducing agents to give toxic and flammable hydrogen sulfide.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Evaporation of the residue after treatment of the thietane with hydrogen peroxide is liable to explode, and must be done in an open dish. This is probably because of formation of a 2 or 3-hydroperoxide derivative.

10.6 Hazardous decomposition products

When heated to decomposition propane sultone emits toxic fumes of SO_x.

11. Toxicological information

Acute toxicity

- Oral: TD Rat oral: 12 g/kg/ 60 wk continuous.
- Inhalation: no data available
- Dermal: no data available

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

The Human Health Assessment Group in EPA's Office of Health and Environmental Assessment has evaluated 1,3-Propane sultone for carcinogenicity. According to their analysis, the weight-of-evidence for 1,3-Propane sultone is group B2, which is based on no evidence in humans and sufficient evidence in animals. As a group B2 chemical, 1,3-Propane sultone is considered as probably carcinogenic to humans.

Reproductive toxicity

No information is available on the reproductive or developmental effects of 1,3-propane sultone in humans. In the offspring of pregnant rats given a single intravenous injection of 1,3-propane sultone during gestation, malignant neurogenic tumors and tumors of the pancreas and ovary were reported.

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

No data were located concerning the biodegradation of 1,3-propane sultone either in natural systems or in laboratory studies(SRC). Since 1,3-propane sultone rapidly hydrolyzes in water (1,2), biodegradation probably will not be a significant process in the environment(SRC).

12.3 Bioaccumulative potential

Since 1,3-propane sultone hydrolyzes rapidly in water(1,2), bioconcentration in aquatic organisms is not expected to be a significant process(SRC).

12.4 Mobility in soil

Since 1,3-propane sultone hydrolyzes rapidly in water(1,2), and presumably in moist soil(SRC), adsorption to soil is not expected to be a significant process(SRC).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 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.

14. Transport information

14.1 UN Number

ADR/RID: UN2811

IMDG: UN2811

IATA: UN2811

14.2 UN Proper Shipping Name

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
- 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 above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.