

Safety Data Sheet

1. Product and company identification

Product name : Tetrahydrothiophene 1,1-dioxide
Name of manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan
Name of section : Reagent division, catalog and products information section
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SDS No. : 40617

2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Pyrophoric solids : Out of category
Substances and mixtures which, in contact with water, emit flammable gases
: Out of category

Human health hazard

Acute toxicity(oral) : Out of category
Acute toxicity(dermal)
: Out of category
Acute toxicity(inhalation:dust, mists)
: Out of category
Skin corrosion/irritation
: Out of category
Serious eye damage/eye irritation
: Category 2B
Skin sensitization : Out of category
Reproductive toxicity
: Category 2

Environmental hazard

Hazardous to the aquatic environment-acute hazard
: Out of category
Hazardous to the aquatic environment-chronic hazard
: Out of category

Pictogram or symbol



Signal word : Warning
Hazard statement : Causes eye irritation
Suspected of damaging fertility or the unborn child

Cautions

- Safety measurements : Do not handle until all safety precautions have been read and understood.
Wear appropriate protective gloves, glasses, clothing, face shield, or mask.
- First-aid measures : If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.
Wash hands thoroughly after handling.
If exposed or concerned, get medical treatment.
- Storage : Store locked up.
- Disposal : Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

- Substance/Mixture : Substance
- Chemical name or commercial name : Tetrahydrothiophene 1,1-dioxide
- Synonyms : Sulfolane
- Ingredients and composition : Tetrahydrothiophene 1,1-dioxide min. 98.0%
- Chemical formula : C₄H₈O₂S
- CAS No. : 126-33-0
- TSCA Inventory : Registered
- EINECS No. : 2047831

4. First aid measures

- Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.
- Skin contact : Wash the affected areas under running water.
- Eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
- Ingestion : Give the victim water or salt water and make him vomit. Get medical attention.
- Protection for first aid person : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

- Extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand
- Prohibited extinguishing media : None
- Particular fire fighting : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.
- Protection for firefighters : Wear breathing apparatus.



6. Accidental release measures

- Cautions for personnel : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.
- Cautions for environment : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.
- Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and flush spillage area with copious amounts of water.
- Prevention of second accident : Remove nearby sources of ignition and prepare extinguishing media.

7. Cautions of handling and storage

Handling

- Engineering measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.
Ventilate well at working places.

Cautions for safety handling

- : Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.

- Cautions : Do not allow contact with oxidizing substances.

Storage

Adequate storage condition

- : Store in a dark, cool place and tightly closed.

Safety adequate container materials

- : Glass, fluorine resin, stainless steel
Do not use polyvinyl chloride resin, polystyrene.

8. Exposure control/Personal protection

- Engineering measures : Use with an enclosed system or a local exhaust ventilation.

Control parameters

- ACGIH(2015) : Not established

Protective equipment

Respiration protective equipment

- : If necessary, wear chemical cartridge respirator with an organic vapor cartage

Hands protective equipment

- : Impervious protective gloves

Eyes protective equipment

- : Safety goggles

Skin and body protective equipment

- : Protective clothing, protective boots

9. Physical and chemical properties

- Appearance : Liquid or solid



Color : Colorless – pale yellow
Odor : Characteristic odor
Boiling point : 287.3°C
Melting point : 28.45°C
Flash point : 166°C
Auto-ignition point : 528°C
Explosion characteristics
Explosion limit : upper : Not available lower : Not available
Vapor pressure : 19hPa(150°C)
Vapor density : 4.1
Density : 1.261g/ml(30°C)
Solubility
Solubility in solvents : Water ; Miscible
Soluble in many kinds of organic solvents
Other data : Viscosity : 10.286cP(30°C)

10. Stability and reactivity

Stability : Stable under normal conditions.
Reactivity : May react with oxidizing substances.
Incompatible conditions : Light, heat
Incompatible materials : Oxidizing substances
Hazardous decomposition products
: Carbon monoxide, sulfur oxides

11. Toxicological information

Acute toxicity : Oral : Out of category
Dermal : Out of category
Inhalation(vapor) : Not possible to classify because of insufficient data.
Inhalation(dust, mist) : Out of category
rat oral LD50=2489mg/kg
rat inhalation LC50=12mg/L/4H
rabbit skin LD50=12600mg/kg
Skin corrosion/irritation : Out of category
Rabbit and guinea pig studies found the substance not irritating. Similarly, other rabbit tests found the substance mildly irritating, or according to the EC classification, not irritating. Based on these results, it was classified into out of category.
Serious eye damage/eye irritation
: Causes eye irritation(category 2B)



A rabbit test found the substance not irritating (mild conjunctivitis was noted but healed in several hours). A rabbit Draize test found the substance slightly irritating (corneal opacity, and iridial and conjunctival irritation were noted but were healed quickly; all treated animals showed complete recovery 7 days after application). A different rabbit test found the substance moderately irritating. Overall, since the Draize test found the substance slightly irritating, it was classified into category 2B.

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Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.

Skin sensitization : Out of category

Skin sensitization: No skin sensitization in a guinea pig maximization test.

Mutagenicity : Not possible to classify because of insufficient data.

Carcinogenic effects : Not possible to classify because of insufficient data

Effects on the reproductive system

: Suspected of damaging fertility or the unborn child(category 2)

In a preliminary reproduction toxicity screening test using rats that underwent oral administration, decreased number of estrous cases before mating, decreased birth index, decreased live birth index, and death of neonates were noted at doses that caused body weight loss and decreased amount of food consumption. Thus, it was classified into category 2.

Specific target organ systemic toxicity single exposure

: Not possible to classify because of insufficient data.

Specific target organ systemic toxicity repeated exposure

: Not possible to classify because of insufficient data.

In 27-day inhalation exposure tests using rats, guinea pigs, dogs, or monkeys (dose: 0.495mg/L, 8-hour/day and 5-days/week), liver and lung inflammation in rats, lung inflammation in guinea pigs, dogs, and monkeys were noted at 0.495mg/L, which is above Category 2 guidance values. In 85 to 110-day inhalation exposure tests (23-hours/day) using monkeys, NOAEL was 0.02mg/L and chronic pleuritis was found at 0.2mg/L. Since all NOAELs obtained in different animal tests are above Category 2 guidance values, the substance presumably has no effects at doses that are within the range of guidance values. These results indicate that the substance falls under out of category (inhalation), however, since its effects through other administration routes are unclear, it was not possible to classify.

Aspiration hazard : Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity : Acute aquatic toxicity : Out of category

Chronic aquatic toxicity : Out of category

Daphnia magna EC50=852mg/L/48H

Persistence and degradability

: Not available

Bioaccumulative potential : Not available

13. Disposal consideration



Residual disposal : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : It is not regulated under UN regulations.

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References Dictionary of Organic Compounds, The society of Synthetic Organic Chemistry, Kodansha Ltd. (1985)

Dangerous Properties of Industrial Materials, 6th ed. N. I. Sax Van Nostrand Reinhold Company (1984)

Handbook of 16817 Chemical Products, The Chemical Daily Co. (2017)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.