

## Chemical Safety Data Sheet MSDS / SDS

## Imidazolidine-2-thione SDS

Revision Date:2024-04-25 Revision Number:1

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

Product name: Imidazolidine-2-thione

CAS: 96-45-7

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

Relevant identified uses: For R&amp;D use only. Not for medicinal, household or other use.

Uses advised against: none

**Company Identification**

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

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

Acute toxicity - Category 4, Oral

Reproductive toxicity, Category 1B

## GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

### Hazard statement(s)

H302 Harmful if swallowed

### Precautionary statement(s)

#### Prevention

P264 Wash ... thoroughly after handling.

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

P203 Obtain, read and follow all safety instructions before use.

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

#### Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P318 IF exposed or concerned, get medical advice.

#### Storage

P405 Store locked up.

#### 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 which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Imidazolidine-2-thione
Common names and synonyms:	Imidazolidine-2-thione
CAS number:	96-45-7
EC number:	202-506-9
Concentration:	100%

## SECTION 4: First aid measures

### Description of necessary first-aid measures

#### If inhaled

Fresh air.

#### Following skin contact

Rinse skin with plenty of water or shower.

#### Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

#### Following ingestion

Rinse mouth. Seek medical attention if you feel unwell.

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

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes Target Organs: Eyes, skin, thyroid, reproductive system (NIOSH, 2016)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

## SECTION 5: Firefighting measures

### Suitable extinguishing media

Use dry chemical, carbon dioxide, water spray, or foam extinguishers ... If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location, use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors or shows any signs of deforming), withdraw immediately to a secure position.

### Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

### Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance

with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames. PREVENT DISPERSION OF DUST. 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

Separated from strong oxidants. Store in an area without drain or sewer access. Store in tightly closed containers in a cool, well ventilated area away from strong oxidizers, acids, acid anhydrides, acrolein. Store in a refrigerator or a cool, dry place. A regulated marked area should be established where this chemical is handled, used, or stored ...

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

MAK: carcinogen category: 3B

### Biological limit values

no data available

### Appropriate engineering 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, such as personal protective equipment (PPE)

#### Eye/face protection

Wear safety spectacles.

#### Skin protection

Protective gloves.

### Respiratory protection

Use local exhaust or breathing protection.

### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	PHYSICAL DESCRIPTION: White to pale green crystals or an off-white solid. Odorless when pure, but technical product may have an amine odor. (NTP, 1992)
Colour:	Needles, prisms from alcohol or amyl alcohol
Odour:	Faint, amine odor
Melting point/freezing point:	15°C(lit.)
Boiling point or initial boiling point and boiling range:	275°C(lit.)
Flammability:	Combustible Solid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	61°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available

Solubility:	>15.3 [ug/mL]
Partition coefficient n-octanol/water:	log Kow = -0.66
Vapour pressure:	less than 1 mm Hg at 68° F (NTP, 1992)
Density and/or relative density:	1.41-1.45
Relative vapour density:	no data available
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

NIOSH considers ethylene thiourea to be a potential occupational carcinogen.

Decomposes on heating and on burning. This produces toxic and irritating fumes including nitrogen oxides and sulfur oxides. Reacts with strong oxidants. This generates fire and explosion hazard.

### Chemical stability

no data available

### Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air. ETHYLENE THIOUREA may be sensitive to prolonged exposure to light. Incompatible with acids, diazo and azo compounds, halocarbons, isocyanates, aldehydes, alkali metals, nitrides, hydrides, and other strong reducing agents. Reactions with these materials generate heat and in many cases hydrogen gas. May react with acids to liberate hydrogen sulfide.

### Conditions to avoid

no data available

### Incompatible materials

Strong oxidizers, acids, acid anhydrides, acrolein.

#### **Hazardous decomposition products**

When heated to decomposition it emits very toxic fumes of /nitroxides/ and /sulfoxides/.

### **SECTION 11: Toxicological information**

#### **Acute toxicity**

Oral: LD50 Rat oral 545 mg/kg bw

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**

Cancer Classification: Group B2 Probable Human Carcinogen

#### **Reproductive toxicity**

In an occupational study, reproductive or developmental effects were not observed in humans. Ethylene thiourea has been shown to be a potent teratogen in rats orally or dermally exposed, causing CNS and skeletal abnormalities.



### **STOT-single exposure**

May cause mechanical irritation. Immediately glues (sticks to) biological tissues. This may result in allergic-type reaction of the eyelids (rose eye).

### **STOT-repeated exposure**

The substance may have effects on the thyroid and liver. This may result in impaired functions. May cause toxicity to human reproduction or development.

### **Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: EC50; Species: *Oncorhynchus mykiss* (Rainbow trout, fertilized egg- early fry stage); Conditions: freshwater, renewal, 10 deg C, pH 7.7, hardness 50 mg/L CaCO<sub>3</sub>; Concentration: 1000000 ug/L for 60 days (95% confidence interval: 600000-3200000 ug/L); Effect: morphological abnormalities /> or =99% purity

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: *Daphnia magna* (Water flea); Conditions: freshwater, renewal; Concentration: 26400 ug/L for 48 hr (95% confidence interval: 21600-32200 ug/L) /99% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### **Persistence and degradability**

AEROBIC: Ethylene thiourea was found to be readily degraded by soil microorganisms(1). Ethylene thiourea degraded rapidly in soil to ethyleneurea and then CO<sub>2</sub>; however, studies with autoclaved soil indicated that initial conversion was accomplished chemically(2) while further degradation to CO<sub>2</sub> was accomplished microbially(3). Ethylene thiourea was shown to be biodegradable in aerobic soil samples from a sandy locality in western Jylland, Denmark at a concentration 125 ug/L incubated in the dark at 23 deg C for 120 days(4). Aerobic decay rates were 11.4 to 13.3 ug/kg soil-day(4). Degradation of 0.07 mg/kg <sup>14</sup>C-labeled ethylene thiourea was determined in surface (19% in 24 hrs) coarse sandy field soil from Denmark(5). Subsurface rates were affected by soil depth; 16% and 23% at 100 and 60 cm depth, respectively, after 109 days. Following a 5 day incubation of 0.05 mg/L ethylene thiourea in activated sludge, 2.9% of applied amount was degraded(5). Ethylene thiourea, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(6).

### **Bioaccumulative potential**

BCFs of <0.2 to 0.3 and <1.8 were determined in carp (*Cyprinus carpio*) for ethylene thiourea at concentrations of 1.0 and 0.1 ppm exposed for 6 weeks(1). According to a classification scheme(2), these BCFs suggest bioconcentration in aquatic organisms is low(SRC).

### **Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc of ethylene thiourea can be estimated to be 13(SRC). According to a classification scheme(2), this estimated Koc value suggests that ethylene thiourea is expected to have very high mobility in soil. Average Rf values of 0.96 (Norfolk sandy loam), 1.00 (Lakeland sandy loam), 0.96 (Hagerstown silty clay loam), 0.83 (Barnes clay loam) and 0.61 (Celeryville muck) were measured using soil TLC plates which is indicative of high mobility in all the soils except the muck which has intermediate mobility(3). Ethylene thiourea Kd values were measured in Dutch soils from Fladerne Baek, March 1994; 0.06 (2.1% clay, 1.4% silt, 96.3% sand, 0.1% humus, pH 6.4), 0.13 (2.5% clay, 1.4% silt, 95.7% sand, 0.3% humus, pH 6.3), 0.17 (3.6% clay, 2.8% silt, 90.8% sand, 2.8% humus, pH 6.9)(4).

### **Other adverse effects**

no data available

## **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.

## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)  
IATA: Not dangerous goods. (For reference only, please check.)

#### **UN Proper Shipping Name**

ADR/RID: Not dangerous goods. (For reference only, please check.)  
IMDG: Not dangerous goods. (For reference only, please check.)  
IATA: Not dangerous goods. (For reference only, please check.)

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

ADR/RID: Not dangerous goods. (For reference only, please check.)  
IMDG: Not dangerous goods. (For reference only, please check.)  
IATA: Not dangerous goods. (For reference only, please check.)

#### **Packing group, if applicable**

ADR/RID: Not dangerous goods. (For reference only, please check.)  
IMDG: Not dangerous goods. (For reference only, please check.)  
IATA: Not dangerous goods. (For reference only, please check.)

#### **Environmental hazards**

ADR/RID: No  
IMDG: No  
IATA: No

#### **Special precautions for user**

no data available

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

no data available

## **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**

Listed.

**China Catalog of Hazardous chemicals 2015**

Not Listed.

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

Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

**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/>

### Other Information

Depending on the degree of exposure, periodic medical examination is suggested.

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