

Chemical Safety Data Sheet MSDS / SDS

Propylthiouracil

Revision Date:2025-07-05 Revision Number:1

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

Product identifier

Product name : Propylthiouracil
CBnumber : CB9777662
CAS : 51-52-5
EINECS Number : 200-103-2
Synonyms : PROPYLTHIOURACIL,6-Propyl-2-thiouracil

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

Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Carcinogenicity, Category 2

Label elements

Pictogram(s)

Signal word : Warning

Hazard statement(s)

H302 Harmful if swallowed
H351 Suspected of causing cancer

Precautionary statement(s)

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P281 Use personal protective equipment as required.

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

no data available

SECTION 3: Composition/information on ingredients

Substance

| | |
|--------------|---|
| Product name | : Propylthiouracil |
| Synonyms | : PROPYLTHIOURACIL, 6-Propyl-2-thiouracil |
| CAS | : 51-52-5 |
| EC number | : 200-103-2 |
| MF | : C7H10N2OS |
| MW | : 170.23 |

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately.

Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

SYMPTOMS: Symptoms of exposure to this compound include recurrent painful skin lesions, fatigue, migratory polyarthralgias of hands and

knees, palpable spleen, splenomegaly, amenorrhea, low-grade fever, gingivostomatitis, weakness, weight loss, dark red-brown colored urine, necrotizing vasculitis, leukopenia, cutaneous vasculitis, nasal congestion, enlarged thyroid, necrotic ulcerations on the lower extremities, bloody nasal discharge and cough. Other symptoms include fever, sore throat, rash and malaise. The most serious reaction to this chemical may be agranulocytosis. It may also cause pain and stiffness in the joints, paresthesias, headache, nausea and loss or depigmentation of hair. On rare occasions, exposure to this material may cause drug fever, hepatitis and nephritis. Other symptoms include urticaria, anorexia, hypoprothrombinemia with purpura and hepatic injury. Exposure may also cause a tendency to hemorrhage, lupus-like syndrome, hypothyroidism, galactorrhea, migratory polyarthritis, reversible tinnitus, hearing loss, hypocalcemia, jaundice, hepatic necrosis and liver disease similar to chronic active hepatitis. It may also cause goiter in infants born to women following exposure to this compound.

ACUTE/CHRONIC HAZARDS: It is harmful if swallowed, inhaled or absorbed through the skin. It may cause irritation. When heated to decomposition, this compound emits very toxic fumes of SO_x and NO_x. It may also emit toxic fumes of carbon monoxide and carbon dioxide.

(NTP, 1992)

Indication of any immediate medical attention and special treatment needed

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Cover skin burns with dry sterile dressings after decontamination . Poisons A and B

SECTION 5: Firefighting measures

Extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

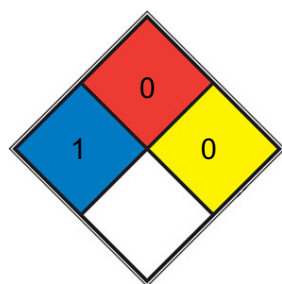
Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available; however it is probably combustible. (NTP, 1992)

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

NFPA 704



HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

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, [N2](#))

☐ SPEC.

☐ HAZ.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (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

SECTION 7: Handling and storage

Precautions for safe handling

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

Commercially available propylthiouracil tablets should be stored in well-closed containers at a temperature less than 40 deg C, preferably between 15-30 deg C.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure 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

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. 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

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

| | |
|--|--|
| Physical state | neat |
| Colour | White |
| Odour | no data available |
| Melting point/freezing point | 218-221°C |
| Boiling point or initial boiling point and boiling range | 355.2°C at 760mmHg |
| Flammability | no data available |
| Lower and upper explosion limit/flammability limit | no data available |
| Flash point | 326°C |
| Auto-ignition temperature | no data available |
| Decomposition temperature | no data available |
| pH | 6-7.5 (5g/l, H ₂ O, 20°C)(slurry) |
| Kinematic viscosity | no data available |
| Solubility | 1.1g/l |
| Partition coefficient n-octanol/water | no data available |
| Vapour pressure | 6.9X10 ⁻⁸ mm Hg at 25 deg C (est) |
| Density and/or relative density | 1.24g/cm ³ |
| Relative vapour density | no data available |
| Particle characteristics | no data available |

SECTION 10: Stability and reactivity

Reactivity

Sensitive to light. May be sensitive to prolonged exposure to air. Insoluble in water.

Chemical stability

Sensitive to light

Possibility of hazardous reactions

6-N-PROPYL-2-THIOURACIL is incompatible with strong oxidizing agents, strong acids and strong bases. Forms complexes with divalent metals. Reacts with sulfhydryl-oxidizing agents (NTP, 1992). When reduced will produce hydrogen sulfide.

Conditions to avoid

no data available

Incompatible materials

Forms complexes with metals and reacts with sulfhydryl-oxidizing agents

Hazardous decomposition products

When heated to decomposition /temperature unspecified/, propylthiouracil emits toxic fumes of nitrogen oxide and sulfur oxide.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1980 mg/kg
- 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

Evaluation: There is inadequate evidence in humans for the carcinogenicity of propylthiouracil. There is sufficient evidence in experimental animals for the carcinogenicity of propylthiouracil. Overall evaluation: Propylthiouracil is possibly carcinogenic to humans (Group 2B).

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

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

Persistence and degradability

AEROBIC: Propyl thiouracil, 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(1).

Bioaccumulative potential

A range of BCF values of <2 to <4 were measured for propyl thiouracil at 0.2 mg/L using carp over a 28 day exposure period(1). According to a classification scheme(2), these BCF values suggest bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for propyl thiouracil can be estimated to be 23(SRC). According to a classification scheme(2), this estimated Koc value suggests that propyl thiouracil is expected to have very high mobility in soil(SRC).

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: no data available

IMDG: no data available

IATA: no data available

UN Proper Shipping Name

ADR/RID: no data available

IMDG: no data available

IATA: no data available

Transport hazard class(es)

ADR/RID: no data available

IMDG: no data available

IATA: no data available

Packing group, if applicable

ADR/RID: no data available

IMDG: no data available

IATA: no data available

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

Not Listed.

IECSC

Not 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?pagelD=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/>

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