n-Propyl Mercaptan

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

Product information
Product Name: n-Propyl Mercaptan
Material: 1086425, 1086424, 1021446, 1027454, 1021458, 1021457, 1021456, 1021454, 1021447, 1021455, 1021445, 1029252, 1021452, 1021453, 1029741
Use: Odorant
Company: Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local: Chevron Phillips Chemicals (Shanghai) Corporation
Room 1810-1812, Shanghai Mart,
2299 Yan An Road (W),
Shanghai, PRC 200336

Emergency telephone:
Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department: Product Safety and Toxicology Group
E-mail address: SDS@CPChem.com
Website: www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
GHS Classification and Labeling: Follow GB 13690, GB 15258 and GB 30000.2 to GB 30000.29 (GHS 2011)
n-Propyl Mercaptan

Version 3.4

Emergency Overview

Danger
Form: Liquid

Physical state: Liquid

Color: Clear

Odor: Repulsive

Hazard Statements:
- Highly flammable liquid and vapor. Harmful if swallowed.
- Causes serious eye irritation. May cause an allergic skin reaction. May cause respiratory irritation. May be harmful if swallowed and enters airways. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Classification
- Flammable liquids, Category 2
- Acute toxicity, Category 4, Oral
- Serious eye damage/eye irritation, Category 2A
- Skin sensitization, Sub-category 1B
- Specific target organ toxicity - single exposure, Category 3, respiratory tract irritation
- Aspiration hazard, Category 2
- Short-term (acute) aquatic hazard, Category 1
- Long-term (chronic) aquatic hazard, Category 1

Labeling

Symbol(s):

Signal Word: Danger

Hazard Statements:
- H225: Highly flammable liquid and vapor.
- H302: Harmful if swallowed.
- H305: May be harmful if swallowed and enters airways.
- H317: May cause an allergic skin reaction.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.
- H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements:
- Prevention:
  - P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - P233: Keep container tightly closed.
  - P240: Ground/bond container and receiving equipment.
  - P241: Use explosion-proof electrical/ventilating/lighting/equipment.
  - P242: Use only non-sparking tools.
  - P243: Take precautionary measures against static discharge.
  - P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
  - P264: Wash skin thoroughly after handling.
  - P270: Do not eat, drink or smoke when using this product.
  - P271: Use only outdoors or in a well-ventilated area.
  - P272: Contaminated work clothing should not be allowed out of the workplace.
  - P273: Avoid release to the environment.
  - P280: Wear protective gloves/eye protection/face protection.

Response:
n-Propyl Mercaptan

SECTION 3: Composition/information on ingredients

Synonyms: 1-propanethiol
N-Propyl Mercaptan
NPM
Normal Propyl Mercaptan

Molecular formula: C3H8S

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<th>Chemical name</th>
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SECTION 4: First aid measures

General advice: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Symptoms of poisoning may appear several hours later. Do not leave the victim unattended.

If inhaled: Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
n-Propyl Mercaptan

In case of skin contact: If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point: -21 °C (-6 °F)

Autoignition temperature: No data available

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media: High volume water jet.

Specific hazards during fire fighting: Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection: Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Hazardous decomposition products: Sulfur oxides. Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
## Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

## SECTION 7: Handling and storage

### Handling

**Advice on safe handling:** Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

**Advice on protection against fire and explosion:** Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

### Storage

**Requirements for storage areas and containers:** No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

**Use:** Odorant

## SECTION 8: Exposure controls/personal protection

### Engineering measures

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

### Personal protective equipment

**Respiratory protection:** Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors.
Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection: The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection: Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Workers should wear antistatic footwear.

Hygiene measures: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance
Form: Liquid
Physical state: Liquid
Color: Clear
Odor: Repulsive

Safety data
Flash point: -21 °C (-6 °F)
Lower explosion limit: No data available
Upper explosion limit: No data available
Oxidizing properties: no

Autoignition temperature: No data available
Molecular formula: C3H8S
Molecular weight: 76.17 g/mol
pH: Not applicable
Pour point: No data available
n-Propyl Mercaptan

Boiling point/boiling range: 68 °C (154 °F)
Vapor pressure: 5.10 PSI
at 37.8 °C (100.0 °F)
Relative density: 0.847
at 15.6 °C (60.1 °F)
Water solubility: Negligible
Partition coefficient: n-octanol/water: No data available
Viscosity, dynamic: 0.399 cP
Relative vapor density: 2.62
(Air = 1.0)
Percent volatile: > 99 %

SECTION 10: Stability and reactivity

Chemical stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions: Hazardous polymerization does not occur.
Further information: No decomposition if stored and applied as directed.
Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid: Heat, flames and sparks.

Materials to avoid: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous decomposition products: Sulfur oxides
Carbon oxides

Other data: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity
n-Propyl Mercaptan: LD50: 1,790 mg/kg
Species: Rat
Sex: male
**Acute inhalation toxicity**

*n*-Propyl Mercaptan  
LC50: > 5.67 mg/l  
Exposure time: 4 h  
Species: Rat  
Sex: male and female  
Test atmosphere: vapor  
Method: OECD Test Guideline 403  
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

**Acute dermal toxicity**

*n*-Propyl Mercaptan  
LD50: > 2,000 mg/kg  
Species: Rabbit  
Sex: male and female  
Method: OECD Test Guideline 402

**Skin irritation**

*n*-Propyl Mercaptan  
No skin irritation

**Eye irritation**

*n*-Propyl Mercaptan  
Mild eye irritation.

**Sensitization**

*n*-Propyl Mercaptan  
The product is a skin sensitizer, sub-category 1B.  
Information given is based on data obtained from similar substances.

**Repeated dose toxicity**

*n*-Propyl Mercaptan  
Species: Rat, male and female  
Sex: male and female  
Application Route: Inhalation  
Dose: 9, 97, 196 ppm  
Exposure time: 13 wks  
Number of exposures: 6 hrs/d, 5 d/wk  
NOEL: 196 ppm  
Method: OECD Test Guideline 413  
Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

*n*-Propyl Mercaptan  
Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative
Test Type: Cytogenetic assay  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

Test Type: Mouse lymphoma assay  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

n-Propyl Mercaptan  
Aspiration toxicity: May be harmful if swallowed and enters airways.

CMR effects  
n-Propyl Mercaptan: Carcinogenicity: Not available  
Mutagenicity: In vitro tests did not show mutagenic effects  
Reproductive toxicity: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments; No toxicity to reproduction

n-Propyl Mercaptan  
Further information: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish  
n-Propyl Mercaptan: LC50: 1.3 mg/l  
Exposure time: 96 h  
Species: Pimephales promelas (fathead minnow)  
semi-static test  
Analytical monitoring: yes  
Test substance: yes  
Method: OECD Test Guideline 203  
Toxic to aquatic organisms.

Toxicity to daphnia and other aquatic invertebrates  
n-Propyl Mercaptan: EC50: 70 µg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Analytical monitoring: yes  
Test substance: yes  
Method: OECD Test Guideline 202  
Very toxic to aquatic organisms.

Toxicity to algae  
n-Propyl Mercaptan: ErC50: 3 mg/l
**n-Propyl Mercaptan**

Exposure time: 72 h  
Species: Pseudokirchneriella subcapitata (algae)  
Growth inhibition Method: OECD Test Guideline 201  
Information given is based on data obtained from similar substances.

**M-Factor**  
propane-1-thiol : M-Factor (Acute Aquat. Tox.) 10  
M-Factor (Chron. Aquat. Tox.) 10

**Toxicity to bacteria**  
n-Propyl Mercaptan : EC50: 880.5 mg/l  
Exposure time: 3 h  
Respiration inhibition Method: OECD Test Guideline 209  
Information given is based on data obtained from similar substances.

**Biodegradability**  
n-Propyl Mercaptan : aerobic  
Result: Not readily biodegradable.  
17 %  
Testing period: 28 Days  
Method: OECD Test Guideline 301

**Bioaccumulation**  
n-Propyl Mercaptan : This material is not expected to bioaccumulate.

**Mobility**  
n-Propyl Mercaptan : Disperses rapidly in air.

**Results of PBT assessment**  
n-Propyl Mercaptan : Non-classified PBT substance, Non-classified vPvB substance

**Additional ecological information**  

**Ecotoxicology Assessment**  
Short-term (acute) aquatic hazard  
n-Propyl Mercaptan : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard  
n-Propyl Mercaptan : Very toxic to aquatic life with long lasting effects.
SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN2402, PROPNETHIOLS, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN2402, PROPNETHIOLS, 3, II, (-21 °C), MARINE POLLUTANT, (N-PROPYL MERCAPTAN)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN2402, PROPNETHIOLS, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN2402, PROPNETHIOLS, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (N-PROPYL MERCAPTAN)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN2402, PROPNETHIOLS, 3, II, ENVIRONMENTALLY HAZARDOUS, (N-PROPYL MERCAPTAN)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN2402, PROPNETHIOLS, 3, II, ENVIRONMENTALLY HAZARDOUS, (N-PROPYL MERCAPTAN)
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

Classification and Labeling of Commonly Used Dangerous Chemical Substances

Primary label: Combustible Liquid.

Notification status

- **Europe REACH**: On the inventory, or in compliance with the inventory
- **United States of America (USA) TSCA**: On the inventory, or in compliance with the inventory
- **Canada DSL**: On the inventory, or in compliance with the inventory
- **Australia AICS**: On the inventory, or in compliance with the inventory
- **New Zealand NZIoC**: On the inventory, or in compliance with the inventory
- **Japan ENCS**: On the inventory, or in compliance with the inventory
- **Korea KECI**: A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.
- **Philippines PICCS**: On the inventory, or in compliance with the inventory
- **China IECSC**: On the inventory, or in compliance with the inventory

Other regulations

- **Law on Prevention and Control of Environment Pollution by Solid Waste, Law on the Prevention and Control of Occupational Diseases**

SECTION 16: Other information

Further information

- **Legacy SDS Number**: 74260

Local emergency contact number: 0532-83889090

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

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<th>American Conference of</th>
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SDS Number:100000013357