SAFETY DATA SHEET

n-Propyl Mercaptan
Version 2.1

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

EC-No. Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index No.</th>
<th>Legal Entity Registration number</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl Mercaptan</td>
<td>107-03-9 203-455-5</td>
<td>Chevron Phillips Chemicals International NV Pre-Registered</td>
</tr>
</tbody>
</table>

Company:
Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local:
Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vinciлаan 19
1831 Diegem
Belgium

SDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email: sds@cpchem.com

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: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

SDS Number: 100000013357
n-Propyl Mercaptan

Version 2.1

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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
REGULATION (EC) No 1272/2008

- Flammable liquids, Category 2  
  H225: Highly flammable liquid and vapor.
- Acute toxicity, Category 4  
  H302: Harmful if swallowed.
- Skin sensitization, Sub-category 1B  
  H317: May cause an allergic skin reaction.
- Acute aquatic toxicity, Category 1  
  H400: Very toxic to aquatic life.
- Chronic aquatic toxicity, Category 1  
  H410: Very toxic to aquatic life with long lasting effects.

Label elements

Labeling (REGULATION (EC) No 1272/2008)

- Hazard pictograms:
  ![Flammable icon](image)
  ![Warning icon](image)
  ![Aquatic toxicity icon](image)

- Signal Word: Danger

- Hazard Statements:
  - H225: Highly flammable liquid and vapor.
  - H302: Harmful if swallowed.
  - H317: May cause an allergic skin reaction.
  - 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.
    - P243: Take precautionary measures against static discharge.
    - P273: Avoid release to the environment.
    - P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

  - Response:
    - P303 + P361 + P353: IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
    - P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
    - P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact...
n-Propyl Mercaptan

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

Molecular formula: C3H8S

Mixtures

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [wt%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl Mercaptan</td>
<td>107-03-9 203-455-5</td>
<td>Flam. Liq. 2; H225 Acute Tox. 4; H302 Skin Sens. 1B; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>98.5 - 100</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

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.

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.
# n-Propyl Mercaptan

## SAFETY DATA SHEET

**Version 2.1**

**Revision Date 2016-05-19**

### SECTION 5: Firefighting measures

<table>
<thead>
<tr>
<th>Property</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>-21 °C (-6 °F)</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Suitable extinguishing media</td>
<td>Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.</td>
</tr>
<tr>
<td>Unsuitable extinguishing media</td>
<td>High volume water jet.</td>
</tr>
<tr>
<td>Specific hazards during fire fighting</td>
<td>Do not allow run-off from fire fighting to enter drains or water courses.</td>
</tr>
<tr>
<td>Special protective equipment for-fire-fighters</td>
<td>Wear self-contained breathing apparatus for firefighting if necessary.</td>
</tr>
<tr>
<td>Further information</td>
<td>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.</td>
</tr>
<tr>
<td>Fire and explosion protection</td>
<td>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.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Sulfur oxides. Carbon oxides.</td>
</tr>
</tbody>
</table>

### SECTION 6: Accidental release measures

<table>
<thead>
<tr>
<th>Precaution</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal precautions</td>
<td>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.</td>
</tr>
<tr>
<td>Environmental precautions</td>
<td>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.</td>
</tr>
<tr>
<td>Methods for cleaning up</td>
<td>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).</td>
</tr>
</tbody>
</table>

### SECTION 7: Handling and storage

<table>
<thead>
<tr>
<th>Handling</th>
<th></th>
</tr>
</thead>
</table>
### 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.

### 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 workplace 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
### n-Propyl Mercaptan

**Version 2.1**

**Revision Date 2016-05-19**

**SDS Number:** 100000013357

| 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 |

| 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 |
n-Propyl Mercaptan

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

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
Harmful if swallowed.

Skin irritation
n-Propyl Mercaptan : No skin irritation

Eye irritation
n-Propyl Mercaptan : slight irritation.

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

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

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)  
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: 0,07 mg/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.

M-Factor  
propane-1-thiol: 10

**Biodegradability**

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

**Ecotoxicology Assessment**

**Acute aquatic toxicity**  
n-Propyl Mercaptan: Very toxic to aquatic life.

**Chronic aquatic toxicity**  
n-Propyl Mercaptan: Very toxic to aquatic life with long lasting effects.

**Additional ecological information**  
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, PROPANETHIOLS, 3, II

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

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

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

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

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN2402, PROPANETHIOLS, 3, II, ENVIRONMENTALLY HAZARDOUS, (N-PROPYL MERCAPTAN)
n-Propyl Mercaptan

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

<table>
<thead>
<tr>
<th>Major Accident Hazard Legislation</th>
<th>96/82/EC Update: 2003</th>
</tr>
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<tbody>
<tr>
<td>Legislation</td>
<td>Highly flammable</td>
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<tr>
<td>7b</td>
<td>Quantity 1: 5.000 t</td>
</tr>
<tr>
<td></td>
<td>Quantity 2: 50.000 t</td>
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<tr>
<td>9a</td>
<td>Dangerous for the environment</td>
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<tr>
<td></td>
<td>Quantity 1: 100 t</td>
</tr>
<tr>
<td></td>
<td>Quantity 2: 200 t</td>
</tr>
</tbody>
</table>

Water contaminating class (Germany)

- WGK 3 highly water endangering

Notification status

- Europe REACH: On the inventory, or in compliance with the inventory
- United States of America 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: On the inventory, or in compliance with the inventory
- Philippines PICCS: On the inventory, or in compliance with the inventory
- China IECSC: On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification

- Health Hazard: 2
- Fire Hazard: 3
- Reactivity Hazard: 0

Further information

- Legacy SDS Number: 74260

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.

<table>
<thead>
<tr>
<th>Key or legend to abbreviations and acronyms used in the safety data sheet</th>
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<tbody>
<tr>
<td>ACGIH</td>
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<tr>
<td>WHMIS</td>
</tr>
</tbody>
</table>

Full text of H-Statements referred to under sections 2 and 3.

H225 | Highly flammable liquid and vapor. |
H302 | Harmful if swallowed. |
H317 | May cause an allergic skin reaction. |
H400 | Very toxic to aquatic life. |
H410 | Very toxic to aquatic life with long lasting effects. |