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

Product information

Product Name: Dipentene Dimercaptan
Material: 1102727, 1021580, 1021576, 1031449, 1021579, 1021578, 1036183, 1021577

Use: Chemical intermediate

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

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
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification
Eye irritation, Category 2B
Skin sensitization, Category 1

Labeling
SAFETY DATA SHEET

Dipentene Dimercaptan

Version 1.8

Revision Date: 2018-05-31

Symbol(s):

Signal Word: Warning

Hazard Statements:
H317: May cause an allergic skin reaction.
H320: Causes eye irritation.

Precautionary Statements:

Prevention:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.

Disposal:
P501 Dispose of contents/container to an approved waste disposal plant.

Carcinogenicity:

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3: Composition/information on ingredients

Synonyms:
3-mercapto-beta-4-dimethyl cyclohexaneethanol
DPDM

Molecular formula: C10H20S2

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight %</th>
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<tr>
<td>Dipentene Dimercaptan</td>
<td>4802-20-4</td>
<td>80 - 100</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

General advice: Move out of dangerous area. Show this material safety data.

SDS Number: 100000014010
Dipentene Dimercaptan

If inhaled
If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of eye contact
Flush eyes with water as a precaution. 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
149 °C (300 °F)
Method: Cleveland Open Cup

Autoignition temperature
No data available

Unsuitable extinguishing media
High volume water jet.

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

Further information
Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire and explosion protection
Normal measures for preventive fire protection.

Hazardous decomposition products
Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions
Use personal protective equipment. Ensure adequate ventilation.

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
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling
### Safeguarding handling

**Advice on safe handling**: Do not breathe vapors/dust. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

**Advice on protection against fire and explosion**: Normal measures for preventive fire protection.

**Storage**

**Requirements for storage areas and containers**: Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

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### 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 NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: 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. Air-Purifying Respirator for Dusts and Mists. 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.

- **Skin and body protection**: Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Protective suit. Safety shoes.

- **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: Colorless to light yellow
- Odor: Mildly unpleasant

**Safety data**
- Flash point: 149 °C (300 °F)  
  Method: Cleveland Open Cup
- Lower explosion limit: No data available
- Upper explosion limit: No data available
- Oxidizing properties: no
- Autoignition temperature: No data available
- Molecular formula: C10H20S2
- Molecular weight: 204.42 g/mol
- pH: Not applicable
- Pour point: No data available
- Boiling point/boiling range: 166 °C (331 °F) at 20.00 MMHG
- Vapor pressure: < 0.10 MMHG at 37.8 °C (100.0 °F)
- Relative density: 1.021 at 20 °C (68 °F)
- Water solubility: Partly soluble
- Partition coefficient: n-octanol/water: No data available
- Viscosity, kinematic: 4.79 cSt at 40 °C (104 °F)
- Relative vapor density: Not applicable
- Evaporation rate: No data available
- Percent volatile: > 99 %

## SECTION 10: Stability and reactivity
**Dipentene Dimercaptan**

**Version 1.8**

**Revision Date**: 2018-05-31

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| 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**: No data available.
- **Hazardous decomposition products**: Carbon oxides, Sulfur oxides

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

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### SECTION 11: Toxicological information

**Acute oral toxicity**

Dipentene Dimercaptan: LD50: 2,060 mg/kg

Species: Mouse

**Eye irritation**

Dipentene Dimercaptan: Mild eye irritation

**Sensitization**

Dipentene Dimercaptan: The product is a skin sensitizer, sub-category 1B. Information given is based on data obtained from similar substances.

**Aspiration toxicity**

Dipentene Dimercaptan: May be harmful if swallowed and enters airways.

**Further information**

Dipentene Dimercaptan: Solvents may degrease the skin.

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### SECTION 12: Ecological information

**Toxicity to fish**

Dipentene Dimercaptan: LC50: 0.099 mg/l

Exposure time: 96 h

Species: Fish

Method: QSAR modeled data

**Toxicity to daphnia and other aquatic invertebrates**

Dipentene Dimercaptan: EC50: 0.074 mg/l

Exposure time: 48 h

Species: Daphnia

Method: QSAR modeled data

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**Toxicity to algae**
Dipentene Dimercaptan

Dipentene Dimercaptan : EC50: 0.064 mg/l
    Exposure time: 72 h
    Species: algae
    Method: QSAR modeled data

M-Factor
beta,4-dimethyl-3-mercaptocyclohexaneethylthiol : M-Factor (Acute Aquat. Tox.) 10
M-Factor (Chron. Aquat. Tox.) 10

Biodegradability
Dipentene Dimercaptan : This material is not expected to be readily biodegradable. Information given is based on data obtained from similar substances.

Ecotoxicology Assessment
Acute aquatic toxicity
Dipentene Dimercaptan : Very toxic to aquatic life.

Chronic aquatic toxicity
Dipentene Dimercaptan : Very toxic to aquatic life with long lasting effects.

Additional ecological information
Dipentene Dimercaptan : 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 : Do not dispose of waste into sewer. 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.

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
Dipentene Dimercaptan

bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIPENTENE DIMERCAPTAN), 9, III, (149 °C), MARINE POLLUTANT

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3334, AVIATION REGULATED LIQUID, N.O.S., (DIPENTENE DIMERCAPTAN), 9, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIPENTENE DIMERCAPTAN), 9, III

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIPENTENE DIMERCAPTAN), 9, III

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIPENTENE DIMERCAPTAN), 9, III

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

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards : Serious eye damage or eye irritation
Respiratory or skin sensitization

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.
**Dipentene Dimercaptan**

**Version 1.8**

**SARA 302 Threshold Planning Quantity**: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 304 Reportable Quantity**: This material does not contain any components with a section 304 EHS RQ.

**SARA 313 Ingredients**: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

**Ozone-Depletion Potential**: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC’s (40 CFR 60.489).

**US State Regulations**

**Pennsylvania Right To Know**: No components are subject to the Pennsylvania Right to Know Act.

**New Jersey Right To Know**: No components are subject to the New Jersey Right to Know Act.

**California Prop. 65 Ingredients**: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

**Europe REACH**: Not in compliance with the inventory

**United States of America (USA)**: On the inventory, or in compliance with the inventory

**SDS Number**: 100000014010

**Revision Date**: 2018-05-31
Dipentene Dimercaptan

SAFETY DATA SHEET

TSCA
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: Not 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: 1
Reactivity Hazard: 0

Further information

Legacy SDS Number: 43760

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>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH: American Conference of Government Industrial Hygienists</td>
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<tr>
<td>LD50: Lethal Dose 50%</td>
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<td>AICS: Australia, Inventory of Chemical Substances</td>
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<tr>
<td>LOAEL: Lowest Observed Adverse Effect Level</td>
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<tr>
<td>DSL: Canada, Domestic Substances List</td>
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<td>NFPA: National Fire Protection Agency</td>
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<tr>
<td>NDSL: Canada, Non-Domestic Substances List</td>
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<tr>
<td>NIOSH: National Institute for Occupational Safety &amp; Health</td>
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<td>CNS: Central Nervous System</td>
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<td>NTP: National Toxicology Program</td>
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<tr>
<td>CAS: Chemical Abstract Service</td>
</tr>
<tr>
<td>NZIoC: New Zealand Inventory of Chemicals</td>
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<tr>
<td>EC50: Effective Concentration</td>
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<tr>
<td>NOAEL: No Observable Adverse Effect Level</td>
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<td>EC50: Effective Concentration 50%</td>
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<td>NOEC: No Observed Effect Concentration</td>
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<td>EGEST: EOSCA Generic Exposure Scenario Tool</td>
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<td>OSHA: Occupational Safety &amp; Health Administration</td>
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<tr>
<td>EOSCA: European Oilfield Specialty Chemicals Association</td>
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<tr>
<td>PEL: Permissible Exposure Limit</td>
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<tr>
<td>EINECS: European Inventory of Existing Chemical Substances</td>
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<tr>
<td>PICCS: Philippines Inventory of Commercial Chemical Substances</td>
</tr>
<tr>
<td>MAK: Germany Maximum Concentration Values</td>
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<tr>
<td>PRNT: Presumed Not Toxic</td>
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SDS Number: 100000014010

10/11
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
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<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
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<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<td>IECSC</td>
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<td>Threshold Limit Value</td>
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<td>Time Weighted Average</td>
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<td>TSCA</td>
<td>Toxic Substance Control Act</td>
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<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
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<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
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</tbody>
</table>

**SAFETY DATA SHEET**

**Dipentene Dimercaptan**

**Version 1.8**

**Revision Date 2018-05-31**

**SDS Number:** 100000014010