SAFETY DATA SHEET

n-Dodecyl Mercaptan
Version 3.9
Revision Date 2019-07-12

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

Product information

Product Name: n-Dodecyl Mercaptan
Material: 1122303, 1111421, 1021557, 1086421, 1071323, 1086420, 1086419, 1024819, 1024820, 1021558, 1021567, 1021568, 1021571, 1021572, 1021573, 1021574, 1021575, 1033862, 1032614, 1021566, 1021570

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

Local:
CHEVRON PHILLIPS CHEMICALS ASIA PTE. LTD.
C/O DONG WOO CORPORATION
#B-2601, JEONGJAIL-RO,
BUNDANG-GU, SEONGNAMI-SI,
GYEONGGI-DO, 13557
SOUTH KOREA
Telephone no.: +612-9186-1132

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

SDS Number: 100000068622 1/12
n-Dodecyl Mercaptan

Standards for classification and labeling of chemical substances and material safety data sheet (ministry of employment and labor public notice No. 2016-19) (GHS 2011)

Classification:
- Skin corrosion/irritation, Category 1
- Serious eye damage/eye irritation, Category 1
- Skin sensitization, Category 1
- 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:
- H305: May be harmful if swallowed and enters airways.
- H314: Causes severe skin burns and eye damage.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

Prevention:
- P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
- P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P302+P352: IF ON SKIN: Wash with plenty of 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.
- P362 + P364: Take off contaminated clothing and wash it before reuse.
- P391: Collect spillage.

Storage:
- P405: Store locked up.

Disposal:
- P501: Dispose of contents and container according to wastes control act.
n-Dodecyl Mercaptan

SECTION 3: Composition/information on ingredients

| Synonyms               | Normal Dodecyl Mercaptan  
|                       | 1-dodecanethiol  
|                       | NDDM  
|                       | dodecanethiol  

| Molecular formula      | C12H26S  

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<th>KECI Number</th>
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<td>112-55-0</td>
<td>98.5%</td>
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SECTION 4: First aid measures

General advice : Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.

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

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. 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 : 133 °C (271 °F)

Autoignition temperature : 230 °C (446 °F)

Unsuitable extinguishing media : High volume water jet.

Specific hazards during firefighting : 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.

**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**

**Advice on safe handling:** 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. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

**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. 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**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits.
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 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.

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: Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Complete head face and neck protection. Rubber apron. Footwear protecting against chemicals.

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**

Physical state : Liquid
Color : Colorless
Odor : Repulsive

**Safety data**

Flash point : 133 °C (271 °F)
Lower explosion limit : No data available
Upper explosion limit : No data available
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Oxidizing properties : no

Autoignition temperature : 230 °C (446 °F)

Molecular formula : C12H26S

Molecular weight : 202.44 g/mol

pH : Not applicable

Pour point : No data available

Boiling point/boiling range : 270 °C (518 °F)

Vapor pressure : 0.00 mbar at 25 °C (77 °F)

Relative density : No data available

Water solubility : 0.0054 mg/l

Method: OECD Test Guideline 105

Partition coefficient: n-octanol/water : No data available

Viscosity, dynamic : 2.98 cP at 25 °C (77 °F)

Relative vapor density : 1

(Air = 1.0)

Evaporation rate : No data available

SECTION 10: Stability and reactivity

Reactivity : Stable under recommended storage conditions.

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 reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Conditions to avoid : Heat, sparks, fire, and oxidizing agents.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as

SDS Number:100000068622
**Hazardous decomposition products**: Chlorates, nitrates, peroxides, etc.

- Carbon oxides
- Sulfur oxides

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

### SECTION 11: Toxicological information

**Acute oral toxicity**

- **n-Dodecyl Mercaptan**: LD50: > 5,000 mg/kg
  - Species: Rat
  - Sex: male

**Acute inhalation toxicity**

- **n-Dodecyl Mercaptan**: > 3.10 mg/l
  - Exposure time: 4.5 h
  - Species: Rat
  - Sex: male and female
  - Test atmosphere: vapor
  - Method: OECD Test Guideline 403
  - Information given is based on data obtained from similar substances.

**Skin irritation**

- **n-Dodecyl Mercaptan**: Corrosive after 1 to 4 hours of exposure

**Eye irritation**

- **n-Dodecyl Mercaptan**: Irreversible effects on the eye

**Sensitization**

- **n-Dodecyl Mercaptan**: The product is a skin sensitizer, sub-category 1A.

**Repeated dose toxicity**

- **n-Dodecyl Mercaptan**: Species: Rat
  - Application Route: Inhalation
  - Dose: 0, 0.43, 1.6, 7.3 ppm
  - Exposure time: 4 wk
  - NOEL: 0.01 mg/l 1.7 ppm
  - Lowest observable effect level: 0.06 mg/l 7.3 ppm
  - Target Organs: Skin

- **Species: Dog**
  - Application Route: Inhalation
  - Dose: 0, 0.44, 1.7, 7.7 ppm
  - Exposure time: 4 wk
  - NOEL: 1.7 ppm
  - Lowest observable effect level: 7.7 ppm
n-Dodecyl Mercaptan

Genotoxicity in vitro
n-Dodecyl Mercaptan: Test Type: Ames test
Result: negative

Test Type: Sister Chromatid Exchange Assay
Result: negative

Test Type: Mouse lymphoma assay
Result: negative

Genotoxicity in vivo
n-Dodecyl Mercaptan: Test Type: Mouse micronucleus assay
Species: Mouse
Dose: 1250, 2500, 5000 mg/kg

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

CMR effects
n-Dodecyl Mercaptan: Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: Animal testing did not show any effects on fertility.

n-Dodecyl Mercaptan Further information: Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish
n-Dodecyl Mercaptan: LC50: > 100 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates
n-Dodecyl Mercaptan: EC50: 1 - 10 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

Toxicity to algae
n-Dodecyl Mercaptan: EC50: 0.0145 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition Method: OECD Test Guideline 201
**n-Dodecyl Mercaptan**

**Biodegradability**

n-Dodecyl Mercaptan : Result: Not readily biodegradable.  
Method: OECD Test Guideline 301  
Information given is based on data obtained from similar substances.

**Bioaccumulation**

n-Dodecyl Mercaptan : Bioconcentration factor (BCF): 234  
Method: Estimated based on individual component values.

**Additional ecological information**

**Ecotoxicology Assessment**

Short-term (acute) aquatic hazard  
n-Dodecyl Mercaptan : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard  
n-Dodecyl 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.

**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.
# n-Dodecyl Mercaptan

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## US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1760, CORROSIVE LIQUIDS, N.O.S., (N-DODECYL MERCAPTAN), 8, III

## IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III, (133 °C), MARINE POLLUTANT, (N-DODECYL MERCAPTAN)

## IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III

## ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III, (E), ENVIRONMENTALLY HAZARDOUS, (N-DODECYL MERCAPTAN)

## RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III, ENVIRONMENTALLY HAZARDOUS, (N-DODECYL MERCAPTAN)

## ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III, ENVIRONMENTALLY HAZARDOUS, (N-DODECYL MERCAPTAN)

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

**Other information** : n- Dodecyl Mercaptan, S.T. 1, Cat. X

### SECTION 15: Regulatory information

#### National legislation

**Regulation under the Occupational Safety and Health Act**
A Material Safety Datasheet (MSDS) for this product is not required according to article 41 of the ISHA.

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Chemical name</th>
<th>Threshold limits</th>
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<tbody>
<tr>
<td>Harmful Substances Prohibited from Manufacturing</td>
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<tr>
<td>Harmful Substances Required Permission for Manufacture</td>
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**Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act**

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<thead>
<tr>
<th>Regulation</th>
<th>Chemical name</th>
<th>Threshold limits</th>
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<td>Toxic Chemicals</td>
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<td>Prohibited Chemicals</td>
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</table>

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Restricted Chemicals : Not applicable
Toxic Release Inventory : Not applicable

Dangerous Substances Safety Management Act
Dangerous Substances : Flammable liquids, Type 3 petroleums, Water insoluble liquid
Safety Management Act

Notification status
Europe REACH : On the inventory, or in compliance with the inventory
United States of America (USA) : On TSCA Inventory
TSCA
Canada DSL : All components of this product are on the Canadian DSL
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 KECl : 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

Further information
Legacy SDS Number : 460130

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

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
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<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
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<td>DSL</td>
<td>Canada, Domestic Substances List</td>
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<tr>
<td>ENCS</td>
<td>Japan, Non-Domestic Substances List</td>
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<tr>
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<td>Chemical Abstract Service</td>
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<td>Lowest Observed Adverse Effect Level</td>
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