SAFETY DATA SHEET

2-Hydroxyethyl-n-Octyl Sulfide

Version 1.6  Revision Date 2019-06-13


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

1.1 Product information

Product Name:  2-Hydroxyethyl-n-Octyl Sulfide
Material:      1121424, 1103532, 1097789, 1087149, 1027448, 1024825

EC-No.Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Legal Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Hydroxyethyl-n-Octyl Sulfide</td>
<td>3547-33-9 222-598-4 603-088-00-4</td>
<td>Chevron Phillips Chemicals International N.V 01-2119971073-40-0000</td>
</tr>
</tbody>
</table>

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant Identified Uses Supported:Intermediate: The substance is registered as a Transported Isolated Intermediate with Strictly Controlled Conditions (SCC) defined in Article 18(4) of Regulation EC No. 1907/2006 and must therefore be handled as such.

1.3 Details of the supplier of the safety data sheet

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 VinciLaan 19
1831 Diegem
Belgium

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

SDS Number:100000014159 1/14
1.4  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 (telex)
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

2.1  Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Skin irritation, Category 2  H315: Causes skin irritation.
Serious eye damage, Category 1  H318: Causes serious eye damage.
Short-term (acute) aquatic hazard, Category 1  H400: Very toxic to aquatic life.

2.2  Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms:

Signal Word: Danger

Hazard Statements:
H315: Causes skin irritation.
H318: Causes serious eye damage.
H400: Very toxic to aquatic life.

Precautionary Statements:
Prevention:
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P391 Collect spillage.

Disposal:
Hazardous ingredients which must be listed on the label:
- 3547-33-9 2-Hydroxyethyl-n-Octyl Sulfide

### SECTION 3: Composition/information on ingredients

#### 3.1 - 3.2
**Substance or Mixture**

- Synonyms: R-874
- Molecular formula: C10H22OS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [wt%]</th>
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</thead>
<tbody>
<tr>
<td>2-Hydroxyethyl-n-Octyl Sulfide</td>
<td>3547-33-9</td>
<td>Skin Irrit. 2; H315 Eye Dam. 1; H318</td>
<td>90 - 100</td>
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<tr>
<td></td>
<td>222-598-4</td>
<td>Aquatic Acute 1; H400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>603-088-00-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### SECTION 4: First aid measures

#### 4.1
**Description of first-aid measures**

- **General advice**: Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

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

- **In case of skin contact**: If skin irritation persists, call a physician. 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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>109 °C (228 °F)</td>
</tr>
<tr>
<td>Method: closed cup</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 5.1 Extinguishing media
- Suitable extinguishing media: Carbon dioxide (CO2), Foam, Dry chemical.
- Unsuitable extinguishing media: High volume water jet.

#### 5.2 Special hazards arising from the substance or mixture
- Specific hazards during firefighting: Do not allow run-off from fire fighting to enter drains or water courses.

#### 5.3 Advice for firefighters
- 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

#### 6.1 Personal precautions, protective equipment and emergency procedures
- Personal precautions: Use personal protective equipment. Ensure adequate ventilation.

#### 6.2 Environmental precautions
- 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.

#### 6.3 Methods and materials for containment and cleaning up
- 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.
2-Hydroxyethyl-n-Octyl Sulfide

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Reference to other sections: For personal protection see section 8. For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling

Advice on safe handling:
Do not breathe vapors/dust. 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.

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

7.2 Conditions for safe storage, including any incompatibilities

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

8.2 Exposure controls

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: Full-Face Supplied-Air Respirator. 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: Protective suit. Complete head face and neck protection. Rubber apron. Footwear protecting against chemicals. 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

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear to light amber</td>
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<tr>
<td>Odor</td>
<td>Mild</td>
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<tr>
<td>Flash point</td>
<td>109 °C (228 °F) Method: closed cup</td>
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<tr>
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<tr>
<td>Upper explosion limit</td>
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<tr>
<td>Oxidizing properties</td>
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<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
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<tr>
<td>Molecular formula</td>
<td>C10H22OS</td>
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<tr>
<td>Molecular weight</td>
<td>190,38 g/mol</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Pour point</td>
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</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>283 - 285 °C (541 - 545 °F)</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0,00 MMHG</td>
</tr>
</tbody>
</table>
2-Hydroxyethyl-n-Octyl Sulfide

Version 1.6

Relative density: 0.93
at 15.6 °C (60.1 °F)

Density: 0.935 g/cm³
at 20 °C (68 °F)

Water solubility: 38.13 MG/L
at 25 °C (77 °F)

Partition coefficient: n-octanol/water
log Pow: 3.64
at 25 °C (77 °F)

Solubility in other solvents: slightly soluble

Viscosity, dynamic: 11 cP

Relative vapor density: No data available

Evaporation rate: No data available

SECTION 10: Stability and reactivity

10.1 Reactivity: Stable under recommended storage conditions.

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

10.3 Possibility of hazardous reactions

Hazardous reactions: Hazardous polymerization does not occur.

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

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

10.5 Materials to avoid: Avoid oxidizing agents.

10.6 Hazardous decomposition products:
Carbon oxides
Sulfur oxides

Other data: No decomposition if stored and applied as directed.
SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
2-Hydroxyethyl-n-Octyl Sulfide: LD50: > 5.000 mg/kg
Species: Rat
Sex: male and female
Method: OECD Test Guideline 401

Acute inhalation toxicity
2-Hydroxyethyl-n-Octyl Sulfide: LC50: > 6.12 milligram per liter
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity
2-Hydroxyethyl-n-Octyl Sulfide: LD50: > 2000 milligram per kilogram
Species: Rabbit
Sex: male and female
Method: OECD Test Guideline 402

Skin irritation
2-Hydroxyethyl-n-Octyl Sulfide: Skin irritation

Eye irritation
2-Hydroxyethyl-n-Octyl Sulfide: Irritation to eyes, reversing within 7 days

Sensitization
2-Hydroxyethyl-n-Octyl Sulfide: Did not cause sensitization on laboratory animals.

Repeated dose toxicity
2-Hydroxyethyl-n-Octyl Sulfide: Species: Rat, Male and female
Sex: Male and female
Application Route: Oral
Dose: 0, 74, 368, 1842 mg/kg/day
Exposure time: 13 wks
NOEL: > 1842 mg/kg/day
Method: OECD Test Guideline 408
No adverse effects expected
Species: Rabbit, Male and female
Sex: Male and female
Application Route: Dermal
Dose: 50, 100, 200 mg/kg/day
Exposure time: 21 days
NOEL: > 200 mg/kg/day
Method: OCED Guideline 408

Genotoxicity in vitro
2-Hydroxyethyl-n-Octyl Sulfide: Test Type: Ames test
Result: negative
Test Type: Chromosome aberration test in vitro
Result: negative
Test Type: Mouse lymphoma assay
Result: negative
Test Type: Sister Chromatid Exchange Assay
Result: negative

Reproductive toxicity
2-Hydroxyethyl-n-Octyl Sulfide: This information is not available.

Developmental Toxicity
2-Hydroxyethyl-n-Octyl Sulfide: Species: Rat
Application Route: oral gavage
Dose: 0, 100, 300, 1000 mg/kg.day
Number of exposures: daily
Test period: GD 6-15
Method: OECD Guideline 414
NOAEL Teratogenicity: 300 mg/kg/day
NOAEL Maternal: 1000 mg/kg/day

Species: Rat
Application Route: oral gavage
Dose: 47, 187, 748 mg/kg/day
Number of exposures: daily
Test period: GD 5-15
Method: OECD Guideline 414
NOAEL Teratogenicity: 748 mg/kg/day
NOAEL Maternal: 748 mg/kg/day

2-Hydroxyethyl-n-Octyl Sulfide Aspiration toxicity: May be harmful if swallowed and enters airways.

CMR effects
2-Hydroxyethyl-n-Octyl Sulfide: 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.
2-Hydroxyethyl-n-Octyl Sulfide

Further information: Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish

2-Hydroxyethyl-n-Octyl Sulfide: LC50: 2,9 mg/l
Exposure time: 96 h
Species: Salmo gairdneri (Rainbow trout)
flow-through test Method: EPA OPP 72-1

LC50: 2,7 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)
flow-through test Method: EPA OPP 72-1

Toxicity to daphnia and other aquatic invertebrates

2-Hydroxyethyl-n-Octyl Sulfide: EC50: 0,38 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
flow-through test

Toxicity to algae

2-Hydroxyethyl-n-Octyl Sulfide: EC50 (calculated): 5,33 mg/l
Exposure time: 96 h
Species: Chlamydomonas angulosa (Green algae)
Method: QSAR modeled data

M-Factor
2-(octylthio)ethanol: M-Factor (Acute Aquat. Tox.) 1

12.2 Persistence and degradability

Biodegradability

2-Hydroxyethyl-n-Octyl Sulfide: aerobic
Result: Readily biodegradable.
99,8 %
Testing period: 28 d
Method: OECD Test Guideline 301B

12.3 Bioaccumulative potential

Bioaccumulation

2-Hydroxyethyl-n-Octyl: Bioconcentration factor (BCF): 117
2-Hydroxyethyl-n-Octyl Sulfide

Sulfide Method: QSAR modeled data
Information refers to the main ingredient.

12.4 Mobility in soil

Mobility

2-Hydroxyethyl-n-Octyl Sulfide: No data available

12.5 Results of PBT and vPvB assessment

Results of PBT assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Additional ecological information
Ecotoxicology Assessment

Short-term (acute) aquatic hazard
2-Hydroxyethyl-n-Octyl Sulfide: Very toxic to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

14.1 - 14.7 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)**
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (2-HYDROXYETHYL-N-OCTYL SULFIDE), 9, III

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (2-HYDROXYETHYL-N-OCTYL SULFIDE), 9, III, (109 °C), MARINE POLLUTANT, (2-HYDROXYETHYL-N-OCTYL SULFIDE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (2-HYDROXYETHYL-N-OCTYL SULFIDE), 9, III

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (2-HYDROXYETHYL-N-OCTYL SULFIDE), 9, III

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (2-HYDROXYETHYL-N-OCTYL SULFIDE), 9, III

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (2-HYDROXYETHYL-N-OCTYL SULFIDE), 9, III

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

**SECTION 15: Regulatory information**

15.1
Safety, health and environmental regulations/legislation specific for the substance or mixture
National legislation

Water contaminating class (Germany) : WGK 3 highly water endangering

15.2
Major Accident Hazard : 96/82/EC Update: 2003
2-Hydroxyethyl-n-Octyl Sulfide

Legend: Dangerous for the environment 9b
Quantity 1: 200 t
Quantity 2: 500 t

Legislation: ZEU_SEVES3
Update: ENVIRONMENTAL HAZARDS
E1
Quantity 1: 100 t
Quantity 2: 200 t

Notification status:
Europe REACH: This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
Switzerland CH INV: 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: On the inventory, or in compliance with the inventory
Philippines PICCS: Not in compliance with the inventory
China IECSC: Not in compliance with the inventory
Taiwan TCSI: Not in compliance with the inventory

SECTION 16: Other information

NFPA Classification: Health Hazard: 3
Fire Hazard: 1
Reactivity Hazard: 0

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>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
</tbody>
</table>

SDS Number: 100000014159

13/14
2-Hydroxyethyl-n-Octyl Sulfide

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

H315 Causes skin irritation.
H318 Causes serious eye damage.
H400 Very toxic to aquatic life.