# SAFETY DATA SHEET

## Di-n-Butyl Sulfide

**Version 1.5**

**Revision Date 2018-04-24**

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

**Product information**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Di-n-Butyl Sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>1120828, 1024580, 1024581, 1024582, 1024729, 1024583, 1036566, 1024584</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 Vinci laan 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: 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

**SDS Number:** 100000068610  
1/11
SECTION 2: Hazards identification

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

Skin irritation, Category 2 H315: Causes skin irritation.
Eye irritation, Category 2 H319: Causes serious eye irritation.
Chronic aquatic toxicity, Category 2 H411: Toxic to aquatic life with long lasting effects.

Label elements
Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms:

Signal Word: Warning

Hazard Statements:
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements:
- Prevention: P264 Wash skin thoroughly after handling.
  P273 Avoid release to the environment.
  P280 Wear protective gloves/ eye protection/ face protection.
- Response: P337 + P313 If eye irritation persists: Get medical advice/ attention.
  P391 Collect spillage.
- Disposal: P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3: Composition/information on ingredients

Synonyms:
- Dinormal Butyl Sulfide
- normal-Butyl Sulfide
- 5-Thianonane
- DNBS
- n-Butyl Sulfide
- 1,1-Thiobisbutane

Molecular formula: C8H18S

Hazardous ingredients

SDS Number: 100000068610 2/11
SAFETY DATA SHEET

Di-n-Butyl Sulfide

Version 1.5
Revision Date 2018-04-24

<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-Butyl Sulfide</td>
<td>544-40-1 208-870-5</td>
<td>Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 2; H411</td>
<td>95 - 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. 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: 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: 77 °C (171 °F)
Method: Cleveland Open Cup

Autoignition temperature: 216 °C (421 °F)

Suitable extinguishing media: Carbon dioxide (CO2).

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. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Di-n-Butyl Sulfide

Fire and explosion protection: Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

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: 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). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling

Advice on safe handling: Avoid formation of aerosol. 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. Provide sufficient air exchange and/or exhaust in work rooms. 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. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers: No smoking. Keep in a 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. Prevent unauthorized access. No smoking. Keep in a 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: 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 in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant protective clothing. 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**

- **Form**: Liquid
- **Physical state**: Liquid
- **Color**: Clear
- **Odor**: Repulsive

**Safety data**

- **Flash point**: 77 °C (171 °F) (Cleveland Open Cup)
- **Lower explosion limit**: 0.8 %(V)
- **Upper explosion limit**: 6.8 %(V)
Di-n-Butyl Sulfide

Oxidizing properties : No

Autoignition temperature : 216 °C (421 °F)

Molecular formula : C8H18S

Molecular weight : 146,32 g/mol

pH : No data available

Freezing point : -75 °C (-103 °F)

Boiling point/boiling range : 180 - 191 °C (356 - 376 °F)

Vapor pressure : 0,10 PSI
    at 38 °C (100 °F)

Relative density : 0,84
    at 15,6 °C (60,1 °F)

Density : 841,2 g/l
    at 16 °C (60 °F)

Water solubility : Negligible

Viscosity, dynamic : 1,05 cP
    at 20 °C (68 °F)

Relative vapor density : 5,07
    (Air = 1,0)

Evaporation rate : 1

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 : Avoid oxidizing agents.

Hazardous decomposition products : Carbon oxides
                                           Sulfur oxides

Other data : No decomposition if stored and applied as directed.
Di-n-Butyl Sulfide

SECTION 11: Toxicological information

Acute oral toxicity
n-Butyl Sulfide : LD50: 2.220 mg/kg
Species: Rat

Acute inhalation toxicity
n-Butyl Sulfide : No data available

Acute dermal toxicity
n-Butyl Sulfide : LD50: > 5.000 mg/kg
Species: Rabbit

Di-n-Butyl Sulfide
Skin irritation : May cause skin irritation in susceptible persons.

Di-n-Butyl Sulfide
Eye irritation : May cause irreversible eye damage.

Di-n-Butyl Sulfide
Aspiration toxicity : May be harmful if swallowed and enters airways.

Di-n-Butyl Sulfide
Further information : Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish
n-Butyl Sulfide : 3.5 mg/l
Exposure time: 96 h
Species: Fish

Toxicity to daphnia and other aquatic invertebrates
n-Butyl Sulfide : 1.71 mg/l
Exposure time: 48 h
Species: Daphnia
Method: QSAR modeled data

Biodegradability
n-Butyl Sulfide : This material is not expected to be readily biodegradable.

Ecotoxicology Assessment
Acute aquatic toxicity
n-Butyl Sulfide : Toxic to aquatic life.
Di-n-Butyl Sulfide

Chronic aquatic toxicity
n-Butyl Sulfide: Toxic to aquatic life with long lasting effects.

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.

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. 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)
NA1993, COMBUSTIBLE LIQUID, N.O.S., (DIBUTYL SULPHIDE), III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIBUTYL SULPHIDE), 9, III, (77 °C), MARINE POLLUTANT, (DIBUTYL SULPHIDE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3334, AVIATION REGULATED LIQUID, N.O.S., (DIBUTYL SULPHIDE), 9, III
Di-n-Butyl Sulfide

Version 1.5

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

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

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

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

SECTION 15: Regulatory information

National legislation

Major Accident Hazard Legislation : 96/82/EC Update: Toxic 2
Quantity 1: 50 t
Quantity 2: 200 t

Water contaminating class (Germany) : WGK 2 water endangering

Notification status

Europe REACH : A substance or substances in this product is not registered or notified to be registered. Importation or manufacture of this product is still permitted provided that it does not exceed the REACH minimum threshold quantity of the non-regulated substances.

Switzerland CH INV : On the inventory, or in compliance with the inventory
United States of America (USA) TSCA : On TSCA Inventory
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 KECI : Not 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
NFPA Classification:
- Health Hazard: 2
- Fire Hazard: 2
- Reactivity Hazard: 0

Further information:
Legacy SDS Number: 46810

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>Full Form</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
<td>LD50: Lethal Dose 50%</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
<td>LOAEL: Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
<td>NFPA: National Fire Protection Agency</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
<td>NIOSH: National Institute for Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
<td>NTP: National Toxicology Program</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
<td>NZIoC: New Zealand Inventory of Chemicals</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
<td>NOAEL: No Observable Adverse Effect Level</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration 50%</td>
<td>NOEC: No Observed Effect Concentration</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
<td>OSHA: Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
<td>PEL: Permissible Exposure Limit</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
<td>PICCS: Philippines Inventory of Commercial Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
<td>PRNT: Presumed Not Toxic</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
<td>RCRA: Resource Conservation Recovery Act</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
<td>STEL: Short-term Exposure Limit</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
<td>SARA: Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
<td>TLV: Threshold Limit Value</td>
</tr>
<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
<td>TWA: Time Weighted Average</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and</td>
<td>TSCA: Toxic Substance Control Act</td>
</tr>
</tbody>
</table>
Di-n-Butyl Sulfide

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

H315      Causes skin irritation.
H319      Causes serious eye irritation.
H411      Toxic to aquatic life with long lasting effects.