

**Di-(2-Hydroxyethyl) Disulfide**

Version 1.6

Revision Date 2018-05-30

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

Product Name : Di-(2-Hydroxyethyl) Disulfide
Material : 1121425, 1116603, 1107391, 1088334, 1077080, 1070368,
1079211, 1086445, 1086807, 1077079, 1097790, 1027449,
1024827

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Dithiodiglycol	1892-29-1 217-576-6	Chevron Phillips Chemicals International NV 01-2120764007-57-0000

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.

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

Emergency telephone:**Health:**

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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****REGULATION (EC) No 1272/2008**

Acute toxicity, Category 3

H301:

Toxic if swallowed.

Acute toxicity, Category 3

H311:

Toxic in contact with skin.

Eye irritation, Category 2

H319:

Causes serious eye irritation.

Skin sensitization, Category 1B

H317:

May cause an allergic skin reaction.

Specific target organ systemic toxicity -
repeated exposure, Category 2

H373:

May cause damage to organs through prolonged or
repeated exposure.

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 : Danger

Hazard Statements : H301 + H311
H317
H319
H373
H411Toxic if swallowed or in contact with skin.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause damage to organs through
prolonged or repeated exposure.
Toxic to aquatic life with long lasting effects.Precautionary Statements : **Prevention:**
P273
P280Avoid release to the environment.
Wear protective gloves/ protective clothing/
eye protection/ face protection.**Response:**P301 + P310 + P330 IF SWALLOWED: Immediately call a
POISON CENTER/doctor. Rinse mouth.
P363 Wash contaminated clothing before reuse.

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P391

Collect spillage.

Hazardous ingredients which must be listed on the label:

- 1892-29-1 Dithiodiglycol

Additional Labeling:

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 5 %
 The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 5 %

SECTION 3: Composition/information on ingredients

Synonyms : Dithiodiglycol
 DiHEDS

Molecular formula : C₄H₁₀O₂S₂

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Dithiodiglycol	1892-29-1 217-576-6	Acute Tox. 3; H301 Acute Tox. 3; H311 Eye Irrit. 2; H319 Skin Sens. 1B; H317 STOT RE 2; H373 Aquatic Chronic 2; H411	88

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. 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 : If on skin, rinse well with water.

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. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

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SECTION 5: Firefighting measures

Flash point	: Not applicable
Autoignition temperature	: 285 °C (545 °F) Method: EU Method A.15
Unsuitable extinguishing media	: High volume water jet.
Specific hazards during fire fighting	: 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.
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. 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.

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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:. 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:. Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
- Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

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In case of an accident during maintenance/cleaning, this substance must be handled under Strictly Controlled Conditions (SCC) in accordance with REACH regulation Article 18(4) for transported isolated intermediates.

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	: Pungent

Safety data

Flash point	: Not applicable
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Oxidizing properties	: No
Autoignition temperature	: 285 °C (545 °F) Method: EU Method A.15
Molecular formula	: C ₄ H ₁₀ O ₂ S ₂
Molecular weight	: 154,26 g/mol
pH	: Not applicable
Freezing point	: 5 °C (41 °F)
Boiling point/boiling range	: Not applicable
Vapor pressure	: 0,00 Pa at 37,8 °C (100,0 °F) Method: OECD Test Guideline 104 estimated
Relative density	: 1,25 at 15,6 °C (60,1 °F)
Density	: 1,29 G/ML
Water solubility	: > 1.000 g/l at 20 °C (68 °F) Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	: log Pow: -0,3 at 20 °C (68 °F) Method: OECD Test Guideline 107
Viscosity, kinematic	: 50 cSt

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at 40 °C (104 °F)

Relative vapor density : 2,69
(Air = 1.0)

Evaporation rate : No data available

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 : No data available.

Materials to avoid : Avoid oxidizing agents.

Hazardous decomposition products : Carbon oxides
Sulfur oxides

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

SECTION 11: Toxicological information**Acute oral toxicity**

Dithiodiglycol : LD50: 376 mg/kg
Species: Rat
Sex: male
Method: OECD Test Guideline 401

LD50: 173 mg/kg
Species: Rat
Sex: female
Method: OECD Test Guideline 401

Acute inhalation toxicity

Dithiodiglycol : LC50: > 10,1 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: vapor

Acute dermal toxicity

Dithiodiglycol : LD50: 516 mg/kg
Species: Rabbit
Sex: male and female

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Method: OECD Test Guideline 402

Skin irritation

Dithiodiglycol : No skin irritation

Eye irritation

Dithiodiglycol : Eye irritation

Sensitization

Dithiodiglycol : The product is a skin sensitizer, sub-category 1B.

Repeated dose toxicity

Dithiodiglycol : Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 0, 5, 20, 75 mg/kg
Exposure time: 30 d
Number of exposures: Daily
NOEL: 20 mg/kg
Lowest observable effect level: 75 mg/kg
Method: OECD Guideline 422
Target Organs: Kidney, Liver

Species: Rat, female
Sex: female
Application Route: oral gavage
Dose: 0, 5, 20, 75 mg/kg
Exposure time: 42 d
Number of exposures: Daily
NOEL: 20 mg/kg
Method: OECD Guideline 422

Reproductive toxicity

Dithiodiglycol : Species: Rat
Sex: male
Application Route: oral gavage
Dose: 0, 5, 20, 75 mg/kg bw
Exposure time: 30 d
Number of exposures: Daily
Method: OECD Guideline 422
NOAEL Parent: 20 mg/kg
NOAEL F1: 20 mg/kg
Fertility and developmental toxicity tests did not reveal any effect on reproduction.

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Species: Rat
Sex: female
Application Route: oral gavage
Dose: 0, 5, 20, 75 mg/kg bw
Exposure time: 42 d
Number of exposures: Daily
Method: OECD Guideline 422
NOAEL Parent: 20 mg/kg
NOAEL F1: 20 mg/kg
Fertility and developmental toxicity tests did not reveal any effect on reproduction.

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Aspiration toxicity : No aspiration toxicity classification.

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Further information : Solvents may degrease the skin.

SECTION 12: Ecological information**Toxicity to fish**

Dithiodiglycol : LC50: > 100 mg/l
Exposure time: 96 h
Species: Cyprinus carpio (Carp)
static test Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Dithiodiglycol : EC50: 4,4 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Method: OECD Test Guideline 202

Toxicity to algae

Dithiodiglycol : ErC50: > 100 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (algae)
Growth inhibition Method: OECD Test Guideline 201

EyC50: 45 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (algae)
Growth inhibition Method: OECD Test Guideline 201

Toxicity to bacteria

Dithiodiglycol : EC50: 612 mg/l
Exposure time: 3 h
Growth rate
Species: Bacteria
Respiration inhibition
Method: OECD Test Guideline 209

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Biodegradability

Dithiodiglycol : aerobic
Result: Not readily biodegradable.
20 %
Testing period: 28 d
Method: OECD Test Guideline 310

Ecotoxicology Assessment

Acute aquatic toxicity
Dithiodiglycol : Toxic to aquatic life.

Chronic aquatic toxicity
Dithiodiglycol : 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 : 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.

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US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN2810, TOXIC, LIQUIDS, ORGANIC, N.O.S., (DITHIODIGLYCOL), 6.1, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (DITHIODIGLYCOL), 6.1, III, MARINE POLLUTANT, (DITHIODIGLYCOL)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (DITHIODIGLYCOL), 6.1, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (DITHIODIGLYCOL), 6.1, III, (E), ENVIRONMENTALLY HAZARDOUS, (DITHIODIGLYCOL)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (DITHIODIGLYCOL), 6.1, III, ENVIRONMENTALLY HAZARDOUS, (DITHIODIGLYCOL)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (DITHIODIGLYCOL), 6.1, III, ENVIRONMENTALLY HAZARDOUS, (DITHIODIGLYCOL)

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 : ZEU_SEVES3 Update:
ENVIRONMENTAL HAZARDS
E2
Quantity 1: 200 t
Quantity 2: 500 t

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 (USA) : On the inventory, or in compliance with the inventory
TSCA
Canada NDSL : This product contains one or several components listed in the Canadian NDSL.
Australia AICS : On the inventory, or in compliance with the inventory
New Zealand NZIoC : On the inventory, or in compliance with the inventory

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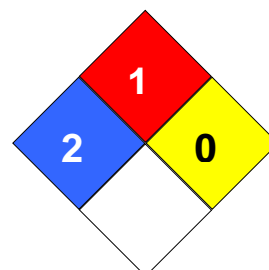
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Japan ENCS	:	Not in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
 Fire Hazard: 1
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 96130

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

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and

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			Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

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

H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.