



Sulfolene

Version 2.3

Revision Date 2023-06-01

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

Product information

Product Name : Sulfolene
 Material : 1094561, 1024666, 1024665, 1024664, 1024663, 1024662, 1024667

Use : Chemical intermediate

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

Local : See Company Address

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

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

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

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Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)

Malta: +356 2395 2000

The Netherlands: NVIC: +31 (0)88 755 8000

Norway: 22 59 13 00 (24 hours/day, 7 days/week)

Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Portugal: CIAV phone number: +351 800 250 250

Romania: +40213183606

Slovakia: +421 2 5477 4166

Slovenia: Phone number: 112

Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)

Sweden: 112 – ask for Poisons Information

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
GHS Classification and labelling according to JIS Z 7252-2019 and JIS Z 7253-2019 (GHS 2015)

Classification

: Serious eye damage/eye irritation, Category 2A

Labeling

Symbol(s) :



Signal Word :

Warning

Hazard Statements :

H319: Causes serious eye irritation.

Precautionary Statements :

Prevention:

P264: Wash skin thoroughly after handling.

P280: Wear eye protection/ face protection.

Response:

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313: If eye irritation persists: Get medical advice/ attention.

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SECTION 3: Composition/information on ingredients

Synonyms : 3-Sulfolene
2,5-Dihydrothiophene-1,1-dioxide

Molecular formula : C₄H₆SO₂

Chemical name	CAS-No.	Concentration	ENCS/ISHL number
Sulfolene	77-79-2	90 % - 100%	5-5264

SECTION 4: First aid measures

General advice : Move out of dangerous area. 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 : Wash off with warm water and soap.

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 : Induce vomiting immediately and call a physician. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Notes to physician

Symptoms : No data available.

Risks : No data available.

Treatment : No data available.

SECTION 5: Firefighting measures

Flash point : 113°C (235°F)
estimated

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.

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- Fire and explosion protection : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
- Hazardous decomposition products : Butadiene. Sulfur oxides.

SECTION 6: Accidental release measures

- Personal precautions : Use personal protective equipment. Avoid dust formation. Avoid breathing dust.
- Environmental precautions : 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 : Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : Avoid formation of respirable particles. 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. Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
- Dust explosion class : St2.

Storage

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

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

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- Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. Air-Purifying Respirator for Dusts and Mists / P100. A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, 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. Safety glasses.
- 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. 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 : Crystalline solid
- Physical state : solid
- Color : White to off-white
- Odor : pungent

Safety data

- Flash point : 113°C (235°F)
estimated
- Lower explosion limit : No data available
- Upper explosion limit : No data available
- Oxidizing properties : no
- Autoignition temperature : No data available
- Molecular formula : C₄H₆SO₂
- Molecular weight : 118.16 g/mol

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pH	: Not applicable
Freezing point	: No data available
Pour point	No data available
Boiling point/boiling range	: Not applicable
Vapor pressure	: Not applicable
Relative density	: 1.31 at 15.6 °C (60.1 °F), estimated
Water solubility	: 13% at 20C (68F)
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: Not applicable
Relative vapor density	: Not applicable
Evaporation rate	: Not applicable
Conductivity	: No data available
Dust deflagration index Kst	: 215 m.b_/s
Minimum ignition energy	: 5 - 10 mJ
Particle size	< 500 µm

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.
Conditions to avoid	: No data available.
Hazardous decomposition products	: Butadiene Sulfur oxides

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

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

Sulfolene : LD50: 2,876 mg/kg
Species: Rat
Sex: male and female
Method: OECD Test Guideline 401

Acute inhalation toxicity

Sulfolene : Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: vapor
Method: OECD Test Guideline 403
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Skin irritation

Sulfolene : No skin irritation

Eye irritation

Sulfolene : Eye irritation

Sensitization

Sulfolene : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Sulfolene : Species: rat (male)
Application Route: oral gavage
Dose: 0, 25, 75, 150 mg/kg/d
Exposure time: 28 d
Number of exposures: daily
NOEL: 25 mg/kg
Lowest observable effect level: 75 mg/kg
Method: OECD Guideline 422
Target Organs: Kidney, Liver

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Species: rat (female)
Application Route: oral gavage
Dose: 0, 10, 25, 75 mg/kg/d
Exposure time: 40 - 52 d
Number of exposures: daily
NOEL: 25 mg/kg
Lowest observable effect level: 75 mg/kg
Method: OECD Guideline 422

Species: Mouse, male
Sex: male
Application Route: oral gavage
Dose: 316,562,1000,1780,3160 mg/kg/d
Exposure time: 6 wk
Number of exposures: 5 d/wk
NOEL: 3,160 mg/kg

Species: Mouse, female
Sex: female
Application Route: oral gavage
Dose: 316,562,1000,1780,3160 mg/kg/d
Exposure time: 6 wk
Number of exposures: 5 d/wk
NOEL: 178 mg/kg

Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 56, 100, 178, 316, 562 mg/kg
Exposure time: 6wk
Number of exposures: 5 d/wk
NOEL: 316 mg/kg

Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 56, 100, 178, 316, 562 mg/kg
Exposure time: 6wk
Number of exposures: 5 d/wk
NOEL: 100 mg/kg

Genotoxicity in vitro

Sulfolene : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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Test Type: Mouse lymphoma assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Sister Chromatid Exchange Assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Carcinogenicity

Sulfolene

: Species: Rat
Sex: female
Dose: 0, 120, 240 mg/kg
Exposure time: 60-78 wks
Number of exposures: 5 d/wk
Remarks: No evidence of carcinogenicity

Species: Rat
Sex: male
Dose: 0, 197, 372 mg/kg
Exposure time: 60-78 wks
Number of exposures: 5 d/wk
Remarks: No evidence of carcinogenicity

Species: Mouse
Sex: female
Dose: 0, 384, 768 mg/kg
Exposure time: 60-78 wks
Number of exposures: 5 d/wk
Remarks: No evidence of carcinogenicity

Species: Mouse
Sex: male
Dose: 0, 311, 622 mg/kg
Exposure time: 60-78 wks
Number of exposures: 5 d/wk
Remarks: No evidence of carcinogenicity

Reproductive toxicity

Sulfolene

: Species: Rat
Sex: male
Application Route: oral gavage
Dose: 0, 25, 150 mg/kg/d
Exposure time: 28 d
Number of exposures: daily
Method: OECD Guideline 422
NOAEL Parent: 75 mg/kg

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Species: Rat
 Sex: female
 Application Route: oral gavage
 Dose: 0, 10, 25, 75 mg/kg/d
 Exposure time: 40 - 52 d
 Number of exposures: daily
 Method: OECD Guideline 422
 NOAEL Parent: 75 mg/kg
 NOAEL F1: 25 mg/kg

Sulfolene
Aspiration toxicity : No aspiration toxicity classification.

Sulfolene
Further information : No data available.

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

Sulfolene : LC50: 940 mg/l
 Exposure time: 96 h
 Species: Salmo gairdneri (Rainbow trout)
 static test Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Sulfolene : EC50: 800 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 Immobilization Method: OECD Test Guideline 202

Toxicity to algae

Sulfolene : EC50: > 1,000 mg/l
 Exposure time: 4 Days
 Species: Selenastrum capricornutum (algae)
 Growth inhibition Method: OECD Test Guideline 201

Biodegradability

Sulfolene : aerobic
 Result: Not readily biodegradable.
 2 %
 Testing period: 28 d
 Method: OECD Test Guideline 301B

Bioaccumulation

Sulfolene : This material is not expected to bioaccumulate.

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Mobility

Sulfolene : No data available

Additional ecological information : This material is not expected to be harmful to aquatic organisms.

Ecotoxicology Assessment**Short-term (acute) aquatic hazard**

Sulfolene : This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard

Sulfolene : This material is not expected to be harmful to aquatic organisms.

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 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)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN3335, AVIATION REGULATED SOLID, N.O.S., (2,5-DIHYDROTHIOPEHENE-1,1-DIOXIDE),
9, III

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR
TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR
TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR
TRANSPORTATION BY THIS AGENCY.

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information**National legislation****Poisonous and Deleterious Substances Control Law**

: Not applicable

Industrial Safety and Health Law

Substances Subject to be Notified Names : Not applicable

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances) :

Harmful Substances Required Permission for Manufacture : Not applicable

Hazardous Substances Subject to Labeling Requirements : Not applicable

Ordinance on Prevention of Organic Solvent Poisoning : Not applicable

Ordinance on Prevention of Lead Poisoning : Not applicable

Harmful Substances Prohibited from Manufacture : Not applicable

Ordinance on Prevention of Hazards Due to Specified : Not applicable

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Chemical Substances
Ordinance on Prevention of
Tetraalkyl Lead Poisoning : Not applicable

: Not applicable

: Not applicable

Substances Prevented From
Impairment of Health : Not applicable
Listed

Chemical Substance Control Law

: Not applicable for Specified Chemical Substance, Monitoring
Chemical Substance and Priority Assessment Chemical
Substance.

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

: Not applicable

Other regulations

Fire Service Law : Not applicable to dangerous materials / designated flammables.

High Pressure Gas Safety Act : Not applicable

Explosive Control Law : Not applicable

Vessel Safety Law : Not regulated as a dangerous good

Aviation Law : Miscellaneous dangerous substances and articles (Article 194
of The Enforcement Rules of Aviation Law and its Attached
Table 1)

Notification status

Europe REACH : Not in compliance with the inventory

Switzerland CH INV : Not in compliance with the inventory

United States of America (USA)
TSCA : On or in compliance with the active portion of the
TSCA inventory

Canada DSL : All components of this product are on the Canadian
DSL

Australia AIIC : Not in compliance with the inventory

New Zealand NZIoC : Not in compliance with the inventory

Japan ENCS : On the inventory, or in compliance with the inventory

Korea KECI : A substance(s) in this product was not registered,
notified to be registered, or exempted from registration
by CPChem according to K-REACH regulations.
Importation or manufacture of this product is still
permitted provided the Korean Importer of Record has
themselves notified the substance or the exported
amount does not exceed the minimum threshold
quantity of the non-registered substance(s).

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Philippines PICCS	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory
China IECSC	:	Not in compliance with the inventory

SECTION 16: Other information**Further information**

Legacy SDS Number : 25500

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%
AIIC	Australian Inventory of Industrial Chemicals	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 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

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LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate
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