

**Sulfolene**

Version 2.4

Revision Date 2023-06-01

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Product information**

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

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
Responsible Party: Product Safety Group
Email:sds@cpchem.com

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
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)

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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 (Gifflinjen): +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)
 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**2.1****Classification of the substance or mixture
REGULATION (EC) No 1272/2008**

Eye irritation, Category 2

H319:

Causes serious eye irritation.

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

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H319 Causes serious eye irritation.

Precautionary Statements : **Prevention:**

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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.

Hazardous ingredients which must be listed on the label:

- 77-79-2 Sulfolene

2.3**Other hazards**

Results of PBT and vPvB 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.

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.1 - 3.2****Substance or Mixture**

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

Molecular formula : C₄H₆SO₂

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
Sulfolene	77-79-2 201-059-7	Eye Irrit. 2; H319	90 - 100	

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. Show this material safety data

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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.

4.2 Most important symptoms and effects, both acute and delayed**Notes to physician**

- Symptoms : No data available.
- Risks : No data available.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No data available.

SECTION 5: Firefighting measures

- Flash point : 113°C (235°F)
estimated
- Autoignition temperature : No data available

5.1**Extinguishing media**

- Unsuitable extinguishing media : High volume water jet.

5.3**Advice for firefighters**

- 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.
- 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**6.1****Personal precautions, protective equipment and emergency procedures**

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Personal precautions : Use personal protective equipment. Avoid dust formation. Avoid breathing dust.

6.2**Environmental precautions**

Environmental precautions : 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 : Keep in suitable, closed containers for disposal.

6.4**Reference to other sections**

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 : 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.

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. Electrical installations / working materials must comply with the technological safety standards.

7.3**Specific End Use**

Use : Chemical intermediate
Formulation

SECTION 8: Exposure controls/personal protection**8.1****Control parameters
Ingredients with workplace control parameters****SK**

Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
Sulfur dioxide	SK OEL	NPEL priemerný	0,5 ppm, 1,3 mg/m3	

SDS Number:100000013472

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	SK OEL	NPEL krátkodobý	1 ppm, 2,7 mg/m3	
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SI

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
Sulfur dioxide	SI OEL	MV	0,5 ppm, 1,3 mg/m3	
	SI OEL	KTV	1 ppm, 2,7 mg/m3	

SE

Bestandsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Sulfur dioxide	SE AFS	NGV	0,5 ppm, 1,3 mg/m3	
	SE AFS	KGV	1 ppm, 2,7 mg/m3	

RO

Componente	Sursă	Valoare	Parametri de control	Notă
Sulfur dioxide	RO OEL	TWA	1,3 mg/m3	
	RO OEL	STEL	2,7 mg/m3	
	RO OEL	TWA	0,5 ppm,	
	RO OEL	STEL	1 ppm,	

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Sulfur dioxide	PT OEL	VLE_CD	0,25 ppm,	A4,
	PT DL 305/2007	oito horas	0,5 ppm, 1,3 mg/m3	
	PT DL 305/2007	curta duração	1 ppm, 2,7 mg/m3	

A4 Agente não classificável como carcinogénico no Homem.

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Sulfur dioxide	PL NDS	NDS	1,3 mg/m3	
	PL NDS	NDSch	2,7 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Sulfur dioxide	FOR-2011-12-06-1358	GV	0,5 ppm, 1,3 mg/m3	
	FOR-2011-12-06-1358	S	1 ppm, 2,7 mg/m3	

NL

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Sulfur dioxide	NL WG	TGG-15 min	0,7 mg/m3	
	NL WG	TGG-8 uur	0,7 mg/m3	

MT

Components	Basis	Value	Control parameters	Note
Sulfur dioxide	MT OEL	TWA	0,5 ppm, 1,3 mg/m3	
	MT OEL	STEL	1 ppm, 2,7 mg/m3	

MK

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Sulfur dioxide	MK OEL	MV	0,5 ppm, 1,3 mg/m3	

LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
Sulfur dioxide	LV OEL	AER 8 st	0,5 ppm, 1,3 mg/m3	
	LV OEL	AER īslaicīgā	1 ppm, 2,7 mg/m3	

LU

Composants	Base	Valeur	Paramètres de contrôle	Note
Sulfur dioxide	LU OEL	TWA	0,5 ppm, 1,3 mg/m3	
	LU OEL	STEL	1 ppm, 2,7 mg/m3	

LT

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
Sulfur dioxide	LT OEL	IPRD	0,5 ppm, 1,3 mg/m3	
	LT OEL	TPRD	1 ppm, 2,7 mg/m3	

IT

Componenti	Base	Valore	Parametri di controllo	Nota
Sulfur dioxide	IT VLEP	TWA	0,5 ppm, 1,3 mg/m3	
	IT VLEP	STEL	1 ppm, 2,7 mg/m3	

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IS

Komponenter	Grunnlag	Verdi	Kontrollparameterer	Nota
Sulfur dioxide	IS OEL	TWA	0,5 ppm, 1,3 mg/m ³	
	IS OEL	STEL	1 ppm, 2,7 mg/m ³	

IE

Components	Basis	Value	Control parameters	Note
Sulfur dioxide	IE OEL	OELV - 8 hrs (TWA)	0,5 ppm, 1,3 mg/m ³	
	IE OEL	OELV - 15 min (STEL)	1 ppm, 2,7 mg/m ³	

HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
Sulfur dioxide	HU OEL	AK-érték	1,3 mg/m ³	EU4, N, m,
	HU OEL	CK-érték	2,7 mg/m ³	EU4, N, m,

EU4 2017/164 EU irányelvben közölt érték

m Maró hatású anyag (felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat)

N Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok. Korrekció NEM szükséges.

HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Sulfur dioxide	HR OEL	GVI	0,5 ppm, 1,3 mg/m ³	
	HR OEL	KGVI	1 ppm, 2,7 mg/m ³	

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Sulfur dioxide	GR OEL	TWA	0,5 ppm, 1,3 mg/m ³	
	GR OEL	STEL	1 ppm, 2,7 mg/m ³	

GB

Components	Basis	Value	Control parameters	Note
Sulfur dioxide	GB EH40	TWA	0,5 ppm, 1,3 mg/m ³	
	GB EH40	STEL	1 ppm, 2,7 mg/m ³	

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
Sulfur dioxide	FR VLE	VME	0,5 ppm, 1,3 mg/m ³	Valeurs limites indicatives,
	FR VLE	VLCT (VLE)	1 ppm, 2,7 mg/m ³	Valeurs limites indicatives,

Valeurs limites Valeurs limites indicatives
indicatives**FI**

Aineosat	Peruste	Arvo	Valvontaa koskevat muutujat	Huomautus
Sulfur dioxide	FI OEL	HTP-arvot 8h	0,5 ppm, 1,3 mg/m ³	
	FI OEL	HTP-arvot 15 min	1 ppm, 2,7 mg/m ³	

ES

Componentes	Base	Valor	Parámetros de control	Nota
Sulfur dioxide	ES VLA	VLA-ED	0,5 ppm, 1,32 mg/m ³	
	ES VLA	VLA-EC	1 ppm, 2,64 mg/m ³	

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Sulfur dioxide	EE OEL	Piirnorm	0,5 ppm, 1,3 mg/m ³	
	EE OEL	Lühiajalise kokkupuute piirnorm	1 ppm, 2,7 mg/m ³	

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Sulfur dioxide	DK OEL	GV	0,5 ppm, 1,3 mg/m ³	

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Sulfur dioxide	DE TRGS 900	AGW	1 ppm, 2,7 mg/m ³	Y,

Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden

CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Sulfur dioxide	CZ OEL	PEL	1,5 mg/m ³	I,
	CZ OEL	NPK-P	3 mg/m ³	I,

I dráždí sliznice (oči, dýchací cesty), respektive kůži

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CY

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Sulfur dioxide	CY OEL	TWA	0,5 ppm, 1,3 mg/m ³	
	CY OEL	STEL	1 ppm, 2,7 mg/m ³	

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Sulfur dioxide	CH SUVA	MAK-Wert	0,5 ppm, 1,3 mg/m ³	NIOSH, OSHA, DFG, SSc.
	CH SUVA	KZGW	1 ppm, 2,7 mg/m ³	NIOSH, OSHA, DFG, SSc.

DFG Deutsche Forschungsgemeinschaft
 NIOSH National Institute for Occupational Safety and Health
 OSHA Occupational Safety and Health Administration
 SSc Eine Schädigung der Leibesfrucht braucht bei Einhaltung des MAK-Wertes nicht befürchtet zu werden.

BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Sulfur dioxide	BG OEL	TWA	0,5 ppm, 1,3 mg/m ³	
	BG OEL	STEL	1 ppm, 2,7 mg/m ³	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Sulfur dioxide	BE OEL	TGG 8 hr	2 ppm, 5,3 mg/m ³	
	BE OEL	TGG 15 min	5 ppm, 13 mg/m ³	

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Sulfur dioxide	AT OEL	MAK-TMW	0,5 ppm, 1,3 mg/m ³	
	AT OEL	MAK-KZW	1 ppm, 2,7 mg/m ³	

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 : 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

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	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**9.1****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	: C ₄ H ₆ SO ₂
Molecular weight	: 118,16 g/mol
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)

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Partition coefficient: n-octanol/water : No data available
 Viscosity, kinematic : Not applicable
 Relative vapor density : Not applicable
 Evaporation rate : Not applicable

9.2**Other information**

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**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 reactions: Hazardous polymerization does not occur.

10.4

Conditions to avoid : No data available.

10.6

Hazardous decomposition products : Butadiene
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**

Sulfolene : LD50: 2.876 mg/kg
Species: Rat

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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

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: 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

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Aspiration toxicity : No aspiration toxicity classification.

11.2**Information on other hazards****Sulfolene****Further information**

Endocrine disrupting properties : No data available.
 : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information**12.1****Toxicity****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

12.2**Persistence and degradability**

Biodegradability

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

12.3**Bioaccumulative potential**

Bioaccumulation

Sulfolene : This material is not expected to bioaccumulate.

12.4**Mobility in soil**

Mobility

Sulfolene : 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**Endocrine disrupting properties**

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7**Other adverse effects**

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

12.8**Additional Information****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.

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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 : 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**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)

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.

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.

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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**15.1**

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

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2

Major Accident Hazard Legislation : 96/82/EC Update: 2003
 Directive 96/82/EC does not apply

: ZEU_SEVES3 Update:
 Not applicable

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).
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

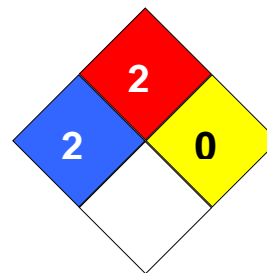
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SECTION 16: Other information

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

**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	TSCA	Toxic Substance Control Act

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	New Chemical Substances		
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%	ATE	Acute toxicity estimate

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

H319 Causes serious eye irritation.