Sulfole® 90 Mercaptan (tert-nonyl Mercaptan)

Version 2.3 Revision Date 2016-05-17

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

Product information

Product Name : Sulfole® 90 Mercaptan (tert-nonyl Mercaptan)
Material : 1117043, 1017941, 1075361, 1087834, 1033724, 1024815, 1021521, 1024814, 1021518, 1021520, 1021522, 1021523, 1021718, 1021519

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
tert-Nonanethiol	25360-10-5 246-896-9	Chevron Phillips Chemicals International NV 01-2119978294-25-0000

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:

866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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 aquatic toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 1	H410: Very toxic to aquatic life with long lasting effects.

Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal Word	:	Warning	
Hazard Statements	:	H410	Very toxic to aquatic life with long lasting effects.
Precautionary Statements	:	**Prevention:**	
		P273	Avoid release to the environment.
		Response:	
		P391	Collect spillage.
		Disposal:	
		P501	Dispose of contents/ container to an approved incineration plant.

Hazardous ingredients which must be listed on the label:
- 25360-10-5 tert-Nonanethiol

SECTION 3: Composition/information on ingredients

Synonyms	:	tert-Nonyl Mercaptan TNM 1,1-dimethylheptanethiol
Molecular formula	:	C9H20S

Mixtures

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
tert-Nonanethiol	25360-10-5 246-896-9	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	95 - 100

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. Symptoms of poisoning may appear several hours later. Do not leave the victim unattended.
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. If on clothes, remove clothes.
In case of eye contact	:	Flush eyes with water as a precaution. 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 induce vomiting. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	:	64 °C (147 °F) Method: Tag closed cup
Autoignition temperature	:	212 °C (414 °F) at 99,50 kPa
Suitable extinguishing media	:	Carbon dioxide (CO2).
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. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

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	:	In case of an accident, this substance must be handled under Strictly Controlled Conditions (SCC) in accordance with REACH regulation Article 18(4) for transported isolated intermediates. Avoid formation of aerosol. 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. Provide sufficient air exchange and/or exhaust in work rooms. 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	:	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 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

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.
Adequate ventilation to control airborned 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:. Air-Purifying Respirator for Organic Vapors. 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 according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate:. Flame-resistant clothing. 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	:	Liquid
Physical state	:	Liquid
Color	:	Colorless
Odor	:	Repulsive

Safety data

Flash point	:	64 °C (147 °F) Method: Tag closed cup
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Autoignition temperature	:	212 °C (414 °F) at 99,50 kPa
Molecular formula	:	C9H20S
Molecular weight	:	160,35 g/mol
pH	:	Not applicable
Melting point/range	:	< -20,0 °C (< -4,0 °F)
Freezing point		< -20,0 °C (< -4,0 °F)
Boiling point/boiling range	:	194 °C (381 °F) at 101,06 kPa
Vapor pressure	:	144,00 Pa at 25,0 °C (77,0 °F)
Relative density	:	0,852 at 20,0 °C (68,0 °F)
Water solubility	:	16,6 MG/L at 20 °C (68 °F)
Partition coefficient: n-octanol/water	:	log Pow: 4,21 at 20 °C (68 °F)
Solubility in other solvents	:	Medium: Water Negligible
Viscosity, dynamic	:	2,84 cP
Viscosity, kinematic	:	1,72 mm2/s at 20 °C (68 °F)
Relative vapor density	:	1 (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.
Hazardous decomposition products	:	Carbon oxides Sulfur oxides
Other data	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

tert-Nonanethiol	:	LD50: 5.550 mg/kg Species: Rat Method: OECD Test Guideline 401 Symptoms: Disorientation, Loss of balance

Acute inhalation toxicity

tert-Nonanethiol	:	LC50: >7,04milligram per literExposure time: 4 h Species: Rat Sex: male and female Test atmosphere: vapor Method: OECD Test Guideline 403

Acute dermal toxicity

tert-Nonanethiol	:	LD50: >2000 milligram per kilogram Species: Rat Sex: male Method: OECD Test Guideline 402

Skin irritation

tert-Nonanethiol	:	No skin irritation

Eye irritation

tert-Nonanethiol	:	No eye irritation

Sensitization

tert-Nonanethiol	:	The results of a test on guinea pigs showed this substance to be a weak skin sensitizer.

Repeated dose toxicity

tert-Nonanethiol	:	Species: Rat, male and female Sex: male and female Application Route: Inhalation

Dose: 0, 26, 98 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 days/wk
Lowest observable effect level: 26 ppm
Method: OECD Guideline 412
Target Organs: Kidney, Liver
Information given is based on data obtained from similar substances.

Developmental Toxicity

tert-Nonanethiol : Species: Rat
Application Route: Inhalation
Dose: 0, 22.7, 88.6 ppm
Number of exposures: 6 h/d
Test period: GD 6 - 19
Method: OECD Guideline 414
NOAEL Teratogenicity: >= 88.6 ppm
NOAEL Maternal: >= 88.6 ppm
No adverse effects expected
Information given is based on data obtained from similar substances.

Sulfole® 90 Mercaptan (tert-nonyl Mercaptan)
Aspiration toxicity : May be harmful if swallowed and enters airways.

CMR effects

tert-Nonanethiol : Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.

Sulfole® 90 Mercaptan (tert-nonyl Mercaptan)
Further information : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

tert-Nonanethiol : No data available

Toxicity to daphnia and other aquatic invertebrates

tert-Nonanethiol : EC50: 0,090 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Immobilization Method: OECD Test Guideline 202

Toxicity to algae

tert-Nonanethiol : No data available

M-Factor
1,1-dimethylheptanethiol : 10

Biodegradability

tert-Nonanethiol : aerobic
Result: Not readily biodegradable.
0 %
Testing period: 28 d
Method: Directive 67/548/EEC Annex V, C.4.D.

Ecotoxicology Assessment

Results of PBT assessment
tert-Nonanethiol : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information : Very 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., (TERT-NONANETHIOL), III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (TERT-

NONANETHIOL), 9, III, (64 °C), MARINE POLLUTANT, (TERT-NONANETHIOL)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (TERT-NONANETHIOL), 9, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (TERT-NONANETHIOL), 9, III, (E)

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

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

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

SECTION 15: Regulatory information

National legislation

Chemical Safety Assessment

Ingredients	:	1,1-dimethylheptanethiol	246-896-9

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Dangerous for the environment
9a
Quantity 1: 100 t
Quantity 2: 200 t

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

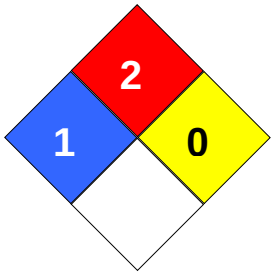
Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	Not 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

SECTION 16: Other information

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



Further information

Legacy SDS Number : 99840

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

			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.

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.