



## Scentinel® A Gas Odorant

Version 1.3

Revision Date 2011-02-04

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### Product information

Trade name : Scentinel® A Gas Odorant  
 Material : 1106807, 1098462, 1102596, 1086453, 1098407, 1086452,  
 1102264, 1072060, 1098463, 1103512, 1070006, 1024777,  
 1024776, 1024775, 1024774, 1029441, 1029442, 1029443,  
 1029444, 1029445

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

**Local** : Chevron Phillips International Ltd.  
 5 Temasek Boulevard  
 D#05-01  
 Suntec Tower Five  
 Singapore, 038985

MSDS Requests: 852-29784899  
 Technical Information: 65-6517 3100  
 Responsible Party: Product Safety Group  
 Email:msds@cpchem.com

#### Emergency telephone:

##### Health:

866.442.9628 (North America)  
 1.832.813.4984 (International)

##### Transport:

North America: CHEMTREC 800.424.9300 or 703.527.3887  
 Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090  
 EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848  
 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 : MSDS@CPChem.com  
 Website : www.CPChem.com

### 2. HAZARDS IDENTIFICATION

#### GHS Classification

: Flammable liquids, Category 1  
 Acute aquatic toxicity, Category 1  
 Chronic aquatic toxicity, Category 1  
 Acute toxicity, Category 4, Oral  
 Aspiration hazard, Category 2  
 Acute toxicity, Category 4, Inhalation

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**GHS-Labeling**

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H224: Extremely flammable liquid and vapor.  
 H302: Harmful if swallowed.  
 H305: May be harmful if swallowed and enters airways.  
 H332: Harmful if inhaled.  
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements

: **Prevention:**  
 P210 Keep away from heat/sparks/open flames/hot surfaces.  
 - No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P243 Take precautionary measures against static discharge.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P331 Do NOT induce vomiting.  
 P312 Call a POISON CENTER or doctor/ physician if you feel unwell.  
**Storage:**  
 P403 + P235 Store in a well-ventilated place. Keep cool.  
**Disposal:**  
 P501 Dispose of contents/ container to an approved waste disposal plant.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms

: Scentinel® A Gas Odorant  
 ETSH  
 Ethanethiol  
 Ethyl Mercaptan

Molecular formula

: C<sub>2</sub>H<sub>6</sub>S

Index-No.

: 016-022-00-9

EINECS-No.

: 200-837-3

Chemical Name	CAS-No. / EINECS-No.	Concentration [wt%]
Ethyl Mercaptan	75-08-1	60 - 100

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**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. Symptoms of poisoning may only appear several hours later. Do not leave the victim unattended.
- If inhaled : Call a physician or poison control center immediately. If unconscious place in recovery position and seek medical advice.
- In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

**5. FIRE-FIGHTING MEASURES**

- Flash point : -48 °C (-54 °F)
- Autoignition temperature : 295 °C (563 °F)
- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.
- 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 fire fighting 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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
- Hazardous decomposition : Carbon oxides. Sulfur oxides.

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**6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- 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).

**7. HANDLING AND STORAGE****Handling**

- Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

**Storage**

- Requirements for storage areas and containers : Prevent unauthorized access. 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.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters****Chevron Phillips Chemical Company LP**

Ingredients	Basis	Value	Control parameters	Note
Ethyl Mercaptan	Manufacturer	TWA	0,5 ppm,	

**DE**

Ingredients	Basis	Value	Control parameters	Note
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MSDS Number:100000068741

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Ethyl Mercaptan	DE TRGS 900	AGW	0,5 ppm, 1,3 mg/m3	DFG,
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DFG Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).

**TW**

Ingredients	Basis	Value	Control parameters	Note
Ethyl Mercaptan	TW OEL	CEIL	10 ppm, 25 mg/m3	

**TW**

成分	基準	値	控制參數	註釋
Ethyl Mercaptan	TW OEL	CEIL	10 ppm, 25 mg/m3	

**US**

Ingredients	Basis	Value	Control parameters	Note
Ethyl Mercaptan	ACGIH	TWA	0,5 ppm,	
	OSHA Z1B	C	10 ppm, 25 mg/m3	(b), (C),
	OSHA Z1A	TWA	0,5 ppm, 1 mg/m3	

(b) The value in mg/m3 is approximate.

(C) Ceiling limit is to be determined from breathing-zone air samples.

**Personal protective equipment**

- Respiratory protection : In the case of vapor formation use a respirator with an approved filter.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- 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.

For additional details, see the Exposure Scenario in the Annex portion

**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 : -48 °C (-54 °F)
- Lower explosion limit : 2,8 %(V)
- Upper explosion limit : 18 %(V)
- Oxidizing properties : No

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Autoignition temperature	: 295 °C (563 °F)
Molecular formula	: C <sub>2</sub> H <sub>6</sub> S
Molecular Weight	: No data available
pH	: Not applicable
Pour point	: No data available
Boiling point/boiling range	: 35 °C (95 °F)
Vapor pressure	: 16,20 PSI at 37,8 °C (100,0 °F)
Water solubility	: Negligible
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 2,1 (Air = 1.0)
Evaporation rate	: 1
Percent volatile	: > 99 %

**10. STABILITY AND REACTIVITY****Possibility of hazardous reactions**

Conditions to avoid	: Heat, flames and sparks.
Materials to avoid	: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. No decomposition if stored and applied as directed.

**11. TOXICOLOGICAL INFORMATION****Acute oral toxicity**

Ethyl Mercaptan	: LD50: 682 mg/kg Species: rat Sex: male Method: Fixed Dose Method
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**Acute inhalation toxicity**

Ethyl Mercaptan	: LC50: > 2,52 mg/l Exposure time: 4 HR Species: rat
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Sex: male and female  
Method: OECD Test Guideline 403

**Acute dermal toxicity**

Ethyl Mercaptan : LD50: > 2.000 mg/kg  
Species: rat  
Sex: male  
Method: OECD Test Guideline 402

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Skin irritation : Mild skin irritation

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Eye irritation : Mild eye irritation

**Repeated dose toxicity**

Ethyl Mercaptan : Species: rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 0, 25, 100, 400 ppm  
Exposure time: 13 wks  
Number of exposures: 6 hr/d, 5 d/wk  
NOEL: 100 ppm  
Lowest observable effect level: 400 ppm  
Method: OECD Guideline 413  
Information given is based on data obtained from similar substances.

Species: rat, Male and female  
Sex: Male and female  
Application Route: Oral  
Dose: 0, 10, 50, 200 mg/kg  
Exposure time: 42-53 days  
NOEL: 50 mg/kg  
Method: OECD Guideline 422  
Information given is based on data obtained from similar substances.

**Reproductive toxicity**

Ethyl Mercaptan : Species: rat  
Application Route: Oral diet  
Dose: 0, 10, 50, 200 mg/kg  
Exposure time: 42-53 days  
Number of exposures: once daily  
Method: OECD Guideline 422  
NOAEL Parent: 200 mg/kg  
NOAEL F1: 50 mg/kg

**Teratogenicity**

Ethyl Mercaptan : Species: rat  
Application Route: Inhalation  
Dose: 0, 0.037, 0.28, or 0.56 mg/L

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Number of exposures: 6 hrs/d  
 Test period: GD 6-19  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: > 0,56 mg/l

Species: rat  
 Application Route: Inhalation  
 Dose: 0, 10, 100, 200 ppm  
 Number of exposures: 6 hrs/d  
 Test period: GD 6-19  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: > 200 ppm  
 NOAEL Maternal: > 200 ppm

**Aspiration toxicity**

Ethyl Mercaptan : May be harmful if swallowed and enters airways.

**CMR effects**

Ethyl Mercaptan : Carcinogenicity: Not available  
 Mutagenicity: Not mutagenic in Ames Test.  
 Teratogenicity: Animal testing did not show any effects on fetal development.  
 Reproductive toxicity: Animal testing did not show any effects on fertility.

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Further information : Solvents may degrease the skin.

**12. ECOLOGICAL INFORMATION****Toxicity to fish**

Ethyl Mercaptan : 2,4 mg/l  
 Exposure time: 96 HR  
 Species: Oncorhynchus mykiss (rainbow trout)  
 Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates.**

Ethyl Mercaptan : EC50: < 0,1 mg/l  
 Exposure time: 48 HR  
 Species: Daphnia magna (Water flea)  
 static test Method: OECD Test Guideline 202

**Toxicity to algae**

Ethyl Mercaptan : EC50: 3 mg/l  
 Exposure time: 72 HR  
 Species: Pseudokirchneriella subcapitata (green algae)  
 Method: OECD Test Guideline 201

**Elimination information (persistence and degradability)**

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Bioaccumulation : This material is not expected to bioaccumulate.

Biodegradability : This material is not expected to be readily biodegradable.

**Further information on ecology****Results of PBT assessment**

Ethyl Mercaptan : Non-classified PBT substance, Non-classified vPvB substance

**Additional ecological information** : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

**13. DISPOSAL CONSIDERATIONS**

The information in this MSDS 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.

For additional details, see the Exposure Scenario in the Annex portion

**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 MSDS and the bill of lading.

**IMO / IMDG**

UN2363, ETHYL MERCAPTAN, 3, I, MP (ETHYL MERCAPTAN), (-48 °C)

**IATA**

UN2363, ETHYL MERCAPTAN, 3, I

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**ADR**

UN2363, ETHYL MERCAPTAN, 3, I

**RID**

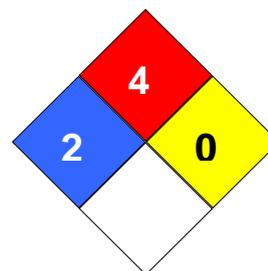
UN2363, ETHYL MERCAPTAN, 3, I

**15. REGULATORY INFORMATION****National legislation****Notification status**

Europe REACH	: On the inventory, or in compliance with the inventory
United States of America US.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	: On the inventory, or in compliance with the inventory
Japan ENCS	: On the inventory, or 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

**16. OTHER INFORMATION**

**NFPA Classification** : Health Hazard: 2  
Fire Hazard: 4  
Reactivity Hazard: 0

**Further information**

Legacy MSDS Number : 25580

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LOAEL	Lowest Observed Adverse Effect Level
AICS	Australia, Inventory of Chemical Substances	NFPA	National Fire Protection Agency

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DSL	Canada, Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
NDSL	Canada, Non-Domestic Substances List	NTP	National Toxicology Program
CNS	Central Nervous System	NZIoC	New Zealand Inventory of Chemicals
CAS	Chemical Abstract Service	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration	NOEC	No Observed Effect Concentration
EC50	Effective Concentration 50%	OSHA	Occupational Safety & Health Administration
EINECS	European Inventory of Existing Chemical Substances	PEL	Permissible Exposure Limit
MAK	Germany Maximum Concentration Values	PICCS	Philippines Inventory of Commercial Chemical Substances
GHS	Globally Harmonized System	PRNT	Presumed Not Toxic
>=	Greater Than or Equal To	RCRA	Resource Conservation Recovery Act
IC50	Inhibition Concentration 50%	STEL	Short-term Exposure Limit
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act.
IECSC	Inventory of Existing Chemical Substances in China	TLV	Threshold Limit Value
ENCS	Japan, Inventory of Existing and New Chemical Substances	TWA	Time Weighted Average
KECI	Korea, Existing Chemical Inventory	TSCA	Toxic Substance Control Act
<=	Less Than or Equal To	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
LC50	Lethal Concentration 50%	WHMIS	Workplace Hazardous Materials Information System
LD50	Lethal Dose 50%		