

Ethyl Mercaptan

Version 2.7

Revision Date 2019-06-13

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2015/830

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

1.1

Product information

Product Name : Ethyl Mercaptan
 Material : 1118972, 1111485, 1024772, 1086422, 1086423, 1021429,
 1021431, 1021426, 1021430, 1021425, 1021424, 1024773,
 1024771, 1024770, 1021427, 1026776, 1021428, 1104918

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Ethyl Mercaptan	75-08-1 200-837-3 016-022-00-9	Chevron Phillips Chemicals International NV 01-2119491286-30-0000

1.2

Relevant identified uses of the substance or mixture and uses advised against

Relevant Identified Uses Supported : Manufacture of Ethanethiol used under Strictly Controlled Conditions
 Use at Industrial Site - Intermediate
 Injection as odorant in Liquefied Petroleum Gas under Strictly Controlled Conditions – Industrial
 Injection as odorant in Liquefied Petroleum Gas under Strictly Controlled Conditions – Consumer

1.3

Details of the supplier of the safety data sheet

Company : Chevron Phillips Chemical Company LP
 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

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SDS Requests: (800) 852-5530
 Technical Information: (832) 813-4862
 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

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

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group

E-mail address : SDS@CPChem.com

Website : www.CPChem.com

SECTION 2: Hazards identification**2.1****Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Flammable liquids, Category 1	H224: Extremely flammable liquid and vapor.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin sensitization, Sub-category 1B	H317: May cause an allergic skin reaction.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

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

Hazard pictograms :



Signal Word : Danger

Hazard Statements	H224	Extremely flammable liquid and vapor.
	H302	Harmful if swallowed.
	H317	May cause an allergic skin reaction.
	H332	Harmful if inhaled.
	H410	Very toxic to aquatic life with long lasting effects.

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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:

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.

P312 Call a POISON CENTER/doctor 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.

Hazardous ingredients which must be listed on the label:

- 75-08-1 Ethyl Mercaptan

Additional Labeling:

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 1 %

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 1 %

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

Synonyms : ETSH
Ethanethiol
Ethyl Mercaptan

Molecular formula : C₂H₆S

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Ethyl Mercaptan	75-08-1 200-837-3 016-022-00-9	Flam. Liq. 1; H224 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Sens. 1B; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	99

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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. Consult a physician. 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 : 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. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

- Flash point : -48 °C (-54 °F)
- Autoignition temperature : 295 °C (563 °F)

5.1**Extinguishing media**

- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical.
- Unsuitable extinguishing media : High volume water jet.

5.2**Special hazards arising from the substance or mixture**

- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

5.3**Advice for firefighters**

- 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

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- 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 products : Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures**6.1****Personal precautions, protective equipment and emergency procedures**

- 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.

6.2**Environmental precautions**

- 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.

6.3**Methods and materials for containment and cleaning up**

- 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).

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 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

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only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

7.2**Conditions for safe storage, including any incompatibilities****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.

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

Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
Ethyl Mercaptan	SK OEL	NPEL priemerný	0,5 ppm, 1,3 mg/m ³	
	SK OEL	NPEL krátkodobý	1 ppm, 2,6 mg/m ³	

SI

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
Ethyl Mercaptan	SI OEL	MV	0,5 ppm, 1,3 mg/m ³	

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Ethyl Mercaptan	PT OEL	VLE-MP	0,5 ppm,	irritação do TRS, afeção do SNC,

afeção do SNC afeção do sistema nervoso central
irritação do TRS irritação do trato respiratório superior
TRS

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Ethyl Mercaptan	PL NDS	NDS	1 mg/m ³	
	PL NDS	NDSch	2 mg/m ³	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Ethyl Mercaptan	FOR-2011-12-06-1358	GV	0,5 ppm, 1 mg/m ³	

LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
Ethyl Mercaptan	LV OEL	AER 8 st	1 mg/m ³	

LT

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
Ethyl Mercaptan	LT OEL	IPRD	1 mg/m ³	O,

O Oksiduojanti

IE

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

HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés

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Ethyl Mercaptan	HU OEL	AK-érték	1 mg/m3	i,
	HU OEL	CK-érték	1 mg/m3	i,

i Ingerlő anyag (izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat)

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Ethyl Mercaptan	GR OEL	TWA	10 ppm, 25 mg/m3	
	GR OEL	STEL	10 ppm, 25 mg/m3	

GB

Components	Basis	Value	Control parameters	Note
Ethyl Mercaptan	GB EH40	TWA	0,5 ppm, 1,3 mg/m3	
	GB EH40	STEL	2 ppm, 5,2 mg/m3	

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
Ethyl Mercaptan	FR VLE	VME	0,5 ppm, 1 mg/m3	normal,

normal Valeurs limites indicatives

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
Ethyl Mercaptan	FI OEL	HTP-arvot 15 min	0,5 ppm, 1,3 mg/m3	

ES

Componentes	Base	Valor	Parámetros de control	Nota
Ethyl Mercaptan	ES VLA	VLA-ED	0,5 ppm, 1,3 mg/m3	

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Ethyl Mercaptan	EE OEL	Piirnorm	0,5 ppm, 1 mg/m3	C,

C Kantseroogeensed ained

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Ethyl Mercaptan	DK OEL	GV	0,5 ppm, 1 mg/m3	

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Ethyl Mercaptan	DE TRGS 900	AGW	0,5 ppm, 1,3 mg/m3	DFG,

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Ethyl Mercaptan	CH SUVA	MAK-Wert	0,5 ppm, 1,3 mg/m3	
	CH SUVA	KZGW	1 ppm, 2,6 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Ethyl Mercaptan	BE OEL	TGG 8 hr	0,5 ppm, 1,3 mg/m3	

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Ethyl Mercaptan	AT OEL	MAK-KZW	0,5 ppm, 1,3 mg/m3	
	AT OEL	MAK-TMW	0,5 ppm, 1,3 mg/m3	

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Chronic effects, Systemic effects
Value: 14,5 mg/m3

DNEL : End Use: Workers
Routes of exposure: Skin contact
Potential health effects: Chronic effects, Systemic effects
Value: 2,06 mg/kg

DNEL : End Use: Workers
Routes of exposure: Inhalation

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Potential health effects: Chronic effects, Local effects
Value: 18,6 mg/m³

PNEC	:	Fresh water Value: 0,0001 mg/l
PNEC	:	Marine water Value: 0,00001 mg/l
PNEC	:	Fresh water sediment Value: 0,00049 mg/kg
PNEC	:	Marine sediment Value: 0,000049 mg/kg
PNEC	:	Soil Value: 0,000039 mg/kg

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	:	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. Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Choose body protection in relation to its type, to the

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concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Flame retardant protective clothing. Workers should wear antistatic footwear.

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

SECTION 9: Physical and chemical properties**9.1****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

 Autoignition temperature : 295 °C (563 °F)
 Molecular formula : C2H6S
 Molecular weight : 62,14 g/mol
 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)
 Relative density : 0,84
 at 15,6 °C (60,1 °F)
 Water solubility : Negligible
 Partition coefficient: n-
 octanol/water : No data available
 Viscosity, kinematic : No data available
 Relative vapor density : 2,1

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(Air = 1.0)

Evaporation rate : 1

Percent volatile : > 99 %

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.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

10.4**Conditions to avoid** : Heat, flames and sparks.**10.5****Materials to avoid** : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.**10.6****Hazardous decomposition products** : Carbon oxides
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**Ethyl Mercaptan : LD50: 682 mg/kg
Species: Rat
Sex: male
Method: Fixed Dose Method

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Acute inhalation toxicity

Ethyl Mercaptan : LC50: 11,23 mg/l
Exposure time: 4 h
Species: Rat
Sex: male
Test atmosphere: vapor

Skin irritation

Ethyl Mercaptan : slight irritation.

Eye irritation

Ethyl Mercaptan : Information given is based on data obtained from similar substances.

Sensitization

Ethyl Mercaptan : The product is a skin sensitizer, sub-category 1B.
Information given is based on data obtained from similar substances.

Repeated dose toxicity

Ethyl Mercaptan : Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 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.

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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.

Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 9, 97, 196 ppm
 Exposure time: 13 wks
 Number of exposures: 6 hr/d, 5 d/wk
 NOEL: >=196 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: Inhalation
 Dose: 0.03, 0.26, 0.55 mg/L
 Exposure time: 13 wks
 Number of exposures: 6 hr/d, 5 d/wk
 NOEL: 0,03 mg/l
 Method: OECD Test Guideline 413
 Information given is based on data obtained from similar substances.

Genotoxicity in vitro

Ethyl Mercaptan : Test Type: Ames test
 Metabolic activation: with and without metabolic activation
 Method: Mutagenicity (Escherichia coli - reverse mutation assay)
 Result: negative

Test Type: Mouse lymphoma assay
 Method: OECD Guideline 476
 Result: Ambiguous

Test Type: Sister Chromatid Exchange Assay
 Metabolic activation: with and without metabolic activation
 Result: positive

Genotoxicity in vivo

Ethyl Mercaptan : Test Type: Micronucleus test
 Species: Mouse
 Method: Mutagenicity (micronucleus test)
 Result: negative

Reproductive toxicity

Ethyl Mercaptan : Species: Rat

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Sex: male and female
 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
 Information given is based on data obtained from similar substances.

Developmental Toxicity

Ethyl Mercaptan : Species: Rat
 Application Route: Inhalation
 Dose: 0, 0.037, 0.28, or 0.56 mg/L
 Number of exposures: 6 hrs/d
 Test period: GD 6-19
 Method: OECD Guideline 414
 NOAEL Teratogenicity: > 0,56 mg/l
 Information given is based on data obtained from similar substances.

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
 Information given is based on data obtained from similar substances.

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.

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

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Ethyl Mercaptan : 2,4 mg/l
 Exposure time: 96 h
 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 h
 Species: *Daphnia magna* (Water flea)
 static test Method: OECD Test Guideline 202

Toxicity to algae

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

M-Factor

ethanethiol : M-Factor (Acute Aquat. Tox.) 10
 M-Factor (Chron. Aquat. Tox.) 10

12.2**Persistence and degradability**

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

12.3**Bioaccumulative potential**

Elimination information (persistence and degradability)

Bioaccumulation : This material is not expected to bioaccumulate.

12.4**Mobility in soil**

Mobility

Ethyl Mercaptan : No data available

12.5**Results of PBT and vPvB assessment**

Results of PBT assessment

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

12.6**Other adverse effects**

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.

Ecotoxicology Assessment

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Short-term (acute) aquatic hazard
Ethyl Mercaptan : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard
Ethyl Mercaptan : Very toxic to aquatic life with long lasting effects.

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 : 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

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)

UN2363, ETHYL MERCAPTAN, 3, I, MARINE POLLUTANT, (ETHYL MERCAPTAN)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

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

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN2363, ETHYL MERCAPTAN, 3, I

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

UN2363, ETHYL MERCAPTAN, 3, I, (D/E), ENVIRONMENTALLY HAZARDOUS, (ETHYL MERCAPTAN)

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

UN2363, ETHYL MERCAPTAN, 3, I, ENVIRONMENTALLY HAZARDOUS, (ETHYL MERCAPTAN)

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

UN2363, ETHYL MERCAPTAN, 3, I, ENVIRONMENTALLY HAZARDOUS, (ETHYL MERCAPTAN)

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

SECTION 15: Regulatory information**15.1****Safety, health and environmental regulations/legislation specific for the substance or mixture
National legislation**

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Water contaminating class (Germany) : WGK 3 highly water endangering**15.2****Chemical Safety Assessment****Components** : ethanethiol A Chemical Safety Assessment 200-837-3 has been carried out for this substance.**Major Accident Hazard Legislation** : 96/82/EC Update: 2003
Highly flammable
7b
Quantity 1: 5.000 t
Quantity 2: 50.000 t: 96/82/EC Update: 2003
Dangerous for the environment
9a
Quantity 1: 100 t
Quantity 2: 200 t**Notification status**Europe REACH : On the inventory, or in compliance with the inventory
United States of America (USA) : On the inventory, or in compliance with the inventory

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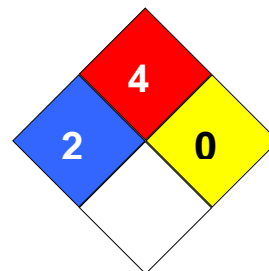
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TSCA
 Canada DSL : On the inventory, or in compliance with the inventory
 Australia AICS : On the inventory, or in compliance with the inventory
 New Zealand NZIoC : On the inventory, or in compliance with the inventory
 Japan ENCS : On the inventory, 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

SECTION 16: Other information

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

**Further information**

Legacy SDS Number : 10555

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

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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.

H224	Extremely flammable liquid and vapor.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.