

**Methyl Mercaptan**

Version 1.3

Revision Date 2013-06-03

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

Trade name : Methyl Mercaptan  
Material : 1080456, 1026775, 1026821, 1021561, 1026822, 1026826,  
1026825, 1028622

Use : Chemical intermediate

**Company** : Specialty Chemicals  
10001 Six Pines Drive  
The Woodlands, TX 77380

**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)

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 : MSDS@CPChem.com  
Website : www.CPChem.com

**SECTION 2: Hazards identification****Emergency Overview****Danger**

**Form:** Compressed gas    **Physical state:** Gaseous    **Color:** Colorless    **Odor:** Rotten eggs

OSHA Hazards : Flammable Gas, Compressed Gas, Toxic by inhalation.

**GHS Classification**





: Flammable gases, Category 1  
Gases under pressure, Compressed gas  
Acute toxicity, Category 3, Inhalation  
Acute aquatic toxicity, Category 1  
Chronic aquatic toxicity, Category 1

**GHS-Labeling**

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Symbol(s)	:	   
Signal Word	:	Danger
Hazard Statements	:	H220: Extremely flammable gas. H280: Contains gas under pressure; may explode if heated. H331: Toxic if inhaled. H401: Toxic to aquatic life.
Precautionary Statements	:	<b>Prevention:</b> P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. <b>Response:</b> P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P311: Call a POISON CENTER or doctor/ physician. P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381: Eliminate all ignition sources if safe to do so. <b>Storage:</b> P403 + P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P410 + P403: Protect from sunlight. Store in a well-ventilated place. <b>Disposal:</b> P501: Dispose of contents/ container to an approved waste disposal plant.
<b>Carcinogenicity:</b>		
<b>IARC</b>		No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<b>NTP</b>		No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<b>ACGIH</b>		No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**SECTION 3: Composition/information on ingredients**

Synonyms	:	Thiomethane MESH Methyl Mercaptan-D MM MESH-D Methane Thiol
Molecular formula	:	CH <sub>3</sub> SH

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Component	CAS-No.	Weight %
Methyl Mercaptan	74-93-1	100

**SECTION 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. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.
- If inhaled : Call a physician or poison control center immediately. Keep patient warm and at rest. If unconscious place in recovery position and seek medical advice. Keep respiratory tract clear.
- 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. 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 : -56 °C (-69 °F)
- Autoignition temperature : No data available
- 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.

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Hazardous decomposition : Sulfur oxides.  
products

**SECTION 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.

**SECTION 7: Handling and storage****Handling**

Advice on safe handling : Do not breathe vapors/dust. 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.

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

US

Ingredients	Basis	Value	Control parameters	Note
Methyl Mercaptan	ACGIH	TWA	0.5 ppm,	
	OSHA Z-1	C	10 ppm, 20 mg/m3	(b), (C),
	OSHA Z-1-A	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.

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**Immediately Dangerous to Life or Health Concentrations (IDLH)**

Substance name	CAS-No.	Control parameters	Update
Methyl Mercaptan	74-93-1	Immediately Dangerous to Life or Health Concentration Value 150 parts per million	1995-03-01

**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: Full-Face Supplied-Air Respirator. 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: Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus. Footwear protecting against chemicals.
- 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.

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****Appearance**

- Form : Compressed gas  
Physical state : Gaseous

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Color : Colorless  
Odor : Rotten eggs

**Safety data**

Flash point : -56 °C (-69 °F)  
Lower explosion limit : 3.9 %(V)

Upper explosion limit : 21.8 %(V)

Oxidizing properties : No

Autoignition temperature : No data available

Molecular formula : CH<sub>3</sub>SH

pH : Not applicable

Pour point : No data available

Boiling point/boiling range : 4.5 - 7.5 °C (40.1 - 45.5 °F)

Vapor pressure : 42.50 PSI  
at 37.8 °C (100.0 °F)

Relative density : 0.875, 15.6 °C(60.1 °F)

Water solubility : Slightly soluble

Relative vapor density : 1.66  
at 15.6 °C (60.1 °F)  
(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.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

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

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

Methyl Mercaptan : LC50: 675 ppm  
Exposure time: 4 h  
Species: rat  
Test atmosphere: gas  
Method: OECD Test Guideline 403

**Sensitization**

Methyl Mercaptan : Does not cause skin sensitization.  
Information given is based on data obtained from similar substances.

**Repeated dose toxicity**

Methyl Mercaptan : Species: rat, male  
Sex: male  
Application Route: Inhalation  
Dose: 0, 2, 17, 57 ppm  
Exposure time: 13 wk  
Number of exposures: 7 h/d, 5 d/wk  
NOEL: 0.033 mg/l 17 ppm  
Lowest observable effect level: 0.118 mg/l 57 ppm  
Method: OECD Guideline 413  
Target Organs: Liver

Species: rat, male  
Sex: male  
Application Route: oral gavage  
Dose: 5, 15, 45 mg/kg  
Exposure time: 8 wk  
Number of exposures: once/d, 7 d/wk  
NOEL: 15 mg/kg  
Lowest observable effect level: 45 mg/kg  
Method: OECD Guideline 422  
Target Organs: Blood  
Information given is based on data obtained from similar substances.

Species: rat, female  
Sex: female  
Application Route: oral gavage  
Dose: 5, 15, 45 mg/kg  
Exposure time: 9 wk  
Number of exposures: once/d, 7 d/wk  
NOEL: 15 mg/kg  
Lowest observable effect level: 45 mg/kg  
Method: OECD Guideline 422  
Target Organs: Blood  
Information given is based on data obtained from similar substances.

**Reproductive toxicity**

Methyl Mercaptan : Species: rat

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Sex: female  
 Application Route: oral gavage  
 Dose: 0, 5, 15, 45 mg/kg  
 Number of exposures: daily  
 Test period: 8-9 wks  
 NOAEL Parent: 45 mg/kg

Species: rat  
 Sex: male  
 Application Route: oral gavage  
 Dose: 0, 5, 15, 45 mg/kg  
 Number of exposures: daily  
 Test period: 8 wks  
 NOAEL Parent: 45 mg/kg

**Teratogenicity**

**Methyl Mercaptan** : Species: rat  
 Application Route: oral gavage  
 Dose: 0, 5, 15, 45 mg/kg  
 Number of exposures: daily  
 Test period: 8-9 wks  
 NOAEL Teratogenicity: 45 mg/kg  
 NOAEL Maternal: 45 mg/kg

Species: rat  
 Application Route: oral gavage  
 Dose: 0, 5, 15, 45 mg/kg  
 Number of exposures: daily  
 Test period: 8 wks  
 NOAEL Teratogenicity: 45 mg/kg  
 NOAEL Maternal: 45 mg/kg

**Methyl Mercaptan  
 Aspiration toxicity** : No aspiration toxicity classification.

**Methyl Mercaptan  
 Further information** : No data available.

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

**Methyl Mercaptan** : LC50: 1.8 mg/l  
 Exposure time: 96 h  
 Species: Danio rerio (Zebra Fish)  
 Information given is based on data obtained from similar substances.

**Toxicity to daphnia and  
 other aquatic invertebrates** : EC50: 1.32 - 2.46 mg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)

**Toxicity to algae** : EC50: 6.3 mg/l



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Exposure time: 72 h  
 Species: Pseudokirchneriella subcapitata (green algae)

## Biodegradability

Methyl Mercaptan : Result: Readily biodegradable.  
 64 %  
 Testing period: 28 d  
 Information given is based on data obtained from similar substances.

Additional ecological information : Toxic to aquatic life.

**SECTION 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.

**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 MSDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

UN1064, METHYL MERCAPTAN, 2.3 (2.1), TOXIC INHALATION HAZARD ZONE C, MARINE POLLUTANT, (METHYL MERCAPTAN), RQ (METHYL MERCAPTAN)

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN1064, METHYL MERCAPTAN, 2.3 (2.1), (-56 °C), MARINE POLLUTANT, (METHYL MERCAPTAN)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

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UN1064, 2.3: NOT PERMITTED FOR TRANSPORT

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**UN1064, METHYL MERCAPTAN, 2.3 (2.1), (B/D), ENVIRONMENTALLY HAZARDOUS,  
(METHYL MERCAPTAN)**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**UN1064, METHYL MERCAPTAN, 2.3 (2.1, (13)), ENVIRONMENTALLY HAZARDOUS, (METHYL  
MERCAPTAN)**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**UN1064, METHYL MERCAPTAN, 2.3 (2.1), ENVIRONMENTALLY HAZARDOUS, (METHYL  
MERCAPTAN)

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

**SECTION 15: Regulatory information****National legislation**

<b>SARA 311/312 Hazards</b>	:	Fire Hazard Sudden Release of Pressure Hazard Acute Health Hazard
CERCLA Reportable Quantity	:	100 lbs  Methyl Mercaptan
SARA 302 Reportable Quantity	:	100 lbs  Methyl Mercaptan
SARA 302 Threshold Planning Quantity	:	The following components are subject to reporting levels established by SARA Title III, Section 302:
		Methyl Mercaptan 74-93-1                      500 lbs
SARA 304 Reportable Quantity	:	100 lbs  Methyl Mercaptan 74-93-1                      100 lbs

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SARA 313 Ingredients : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

: Methyl Mercaptan - 74-93-1

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**US State Regulations**

Pennsylvania Right To Know

: Methyl Mercaptan - 74-93-1

New Jersey Right To Know

: Methyl Mercaptan - 74-93-1

California Prop. 65  
Ingredients

: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

Europe REACH	:	Not in compliance with the inventory
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America US.TSCA	:	On TSCA Inventory
Canada DSL	:	All components of this product are on the Canadian DSL.
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
Japan ISHL	:	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

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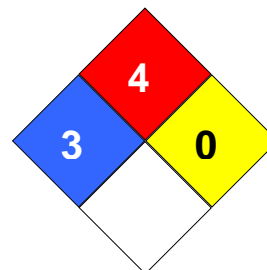
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China IECSC : On the inventory, or in compliance with the inventory

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 3  
Fire Hazard: 4  
Reactivity Hazard: 0

**Further information**

Legacy MSDS Number : 646280

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 information provided in this Material 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	TLV	Threshold Limit Value

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	on Cancer		
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%		