



# Material Safety Data Sheet

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

### SCENTINEL® E GAS ODORANT

Synonyms: GAS ODORANT; MERCAPTAN MIXTURE

Product Cas No.: MIXTURE

#### Company Identification:

Chevron Phillips Chemical Company LP  
Specialty Chemicals  
10001 Six Pines Drive  
The Woodlands TX 77380

#### Product Information:

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

#### 24-Hour Emergency Telephone Numbers

HEALTH :CT Emergency Information Center (800) 231-0623 or (510) 231-0623  
TRANSPORTATION : North America: CHEMTREC (800) 424-9300 or (703) 527-3887  
ASIA: (800) ALERTSGS or (800) 25378747 or +65+6542+9595  
EUROPE: BIG +32+14+584545 (phone) or +32+14+583516 (telefax)  
SOUTH AMERICA SOS-Cotec Inside Brazil: 0800+111+767  
Outside Brazil: 55+19+3467+1600

## SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	AMOUNT	EINECS	SYN	R-PHRASES
TERTIARY BUTYL MERCAPTAN	75-66-1	77 % weight	200-890-2	F Xn	R11, R51, R65, R43
ISOPROPYL MERCAPTAN	75-33-2	16 % weight	200-861-4	NA	NA
N-PROPYL MERCAPTAN	107-03-9	6 % weight	203-455-5	NA	NA
RELATED MATERIALS	VARIOUS	1 % weight	NA	NA	NA

#### Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling / Peak	Notation
ISOPROPYL MERCAPTAN	CPCHEM	Not Established	NA	NA	NA
N-PROPYL MERCAPTAN	CPCHEM	Not Established	NA	NA	NA
TERTIARY BUTYL MERCAPTAN	CPCHEM	.5 ppm	NA	NA	n-BUTYL MERCAPTAN

Revision Number: 1

Revision Date: 05/07/2004

1 of 9

SCENTINEL® E GAS ODORANT  
MSDS : 93850

**SECTION 3 HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

Clear liquid, repulsive odor.

- HARMFUL OR FATAL IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE
- MAY CAUSE NAUSEA, DIZZINESS, OR HEADACHE
- CAUSES EYE IRRITATION
- MAY CAUSE AN ALLERGIC SKIN REACTION
- TOXIC TO AQUATIC ORGANISMS

**IMMEDIATE HEALTH EFFECTS:**

**Eye:** Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision. Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin may cause an allergic skin reaction. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin. Contact with the skin is not expected to cause prolonged or significant irritation.

**Ingestion:** Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

**Inhalation:** Not expected to be harmful if inhaled. This material has a strong objectionable odor that may cause nausea, dizziness, or headache.

**DELAYED OR OTHER HEALTH EFFECTS:**

**Reproduction and Birth Defects:** This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

**SECTION 4 FIRST AID MEASURES**

**Eye:** Flush eyes with running water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

**Skin:** To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse. Get medical attention if any symptoms develop.

**Ingestion:** If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get immediate medical attention. Never give anything by mouth to an unconscious person.

**Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

**SECTION 5 FIRE FIGHTING MEASURES****FIRE CLASSIFICATION:**

OSHA Classification (29 CFR 1910.1200): Flammable liquid.

NFPA RATINGS: Health: 2 Flammability: 3 Reactivity: 0

Revision Number: 1  
Revision Date: 05/07/2004

2 of 9

SCENTINEL® E GAS ODORANT  
MSDS : 93850



**FLAMMABLE PROPERTIES:****Flashpoint:** -18°C (-0.4°F) Estimated**Autoignition:** NDA**Flammability (Explosive) Limits (% by volume in air):** Lower: NDA Upper: NDA**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.**PROTECTION OF FIRE FIGHTERS:****Fire Fighting Instructions:** For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.**Combustion Products:** Combustion may form: Sulfur Oxides**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Spill Management:** Spill residues and contaminated soil may be deodorized using dilute (5%) aqueous solutions of bleach (sodium hypochlorite). Alternatively, household bleach (Clorox, Purex) in a dilute solution may be used. Do not use concentrated or dry bleach. Absorb in dry, inert material. Do not attempt to neutralize or deodorize bulk liquid mercaptan. Concentrated bleach will cause heating and possible ignition. Attempts to neutralize bulk liquid mercaptan with bleach solutions will be ineffective and only serve to increase the amount of liquid to dispose.

**SECTION 7 HANDLING AND STORAGE**

**READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL . REFER TO PRODUCT LABEL OR MANUFACTURERS TECHNICAL BULLETINS FOR THE PROPER USE AND HANDLING OF THIS MATERIAL .**

**Precautionary Measures:** Avoid breathing vapors or fumes which may be released during thermal processing.

**General Handling Information:** Avoid work practices that may release volatile components in the atmosphere. Local air pollution regulations should be consulted to determine if the release of volatile components is regulated or restricted in the area in which this material is used. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations, which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids, National Fire Protection Association (NFPA 77), Recommended Practice on Static Electricity' (liquids, powders and dusts), and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents' (liquids).

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

**SECTION 8 EXPOSURE CONTROL/PERSONAL PROTECTION****GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 3), 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.

#### ENGINEERING CONTROLS:

Use in a well-ventilated area. If heated material generates vapor or fumes, use process enclosures, local exhaust ventilation, or other engineering controls to control exposure.

#### PERSONAL PROTECTIVE EQUIPMENT:

**Eye/Face Protection:** Wear eye protection such as safety glasses, chemical goggles, or faceshields if engineering controls or work practices are not adequate to prevent eye contact.

**Skin Protection:** Wear impervious protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots; and complete facial protection depending on operations conducted. Users should determine acceptable performance characteristics of protective clothing. Consider physical requirements and other substances present when selecting protective clothing. Suggested materials for protective gloves include: 4H (PE/EVAL)

**Respiratory Protection:** No respiratory protection is normally required. If heated material generates vapor or fumes that are not adequately controlled by ventilation, wear a NIOSH approved respirator. Use the following elements for air-purifying respirators: Air-Purifying Respirator for Dusts and Mists  
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.

#### Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling / Peak	Notation
ISOPROPYL MERCAPTAN	CPCHEM	Not Established	NA	NA	NA
N-PROPYL MERCAPTAN	CPCHEM	Not Established	NA	NA	NA
TERTIARY BUTYL MERCAPTAN	CPCHEM	.5 ppm	NA	NA	n-BUTYL MERCAPTAN

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE AND ODOR:** Clear liquid, repulsive odor.

**pH:** NA

**VAPOR PRESSURE:** 7 psia @ 38 °C (100°F)

**VAPOR DENSITY (AIR=1):** >2

**BOILING POINT:** 59°C (138.2°F) - 67°C (152.6°F)

**SOLUBILITY (in water):** Negligible

**PERCENT VOLATILE:** 100 % volume

**SPECIFIC GRAVITY:** 0.806 @ 16 °C (61°F)

**EVAPORATION RATE:** >1 (N-Butyl Acetate = 1)

#### 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.

**Conditions to Avoid:** Not Applicable



**Incompatibility With Other Materials:** May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Hazardous Decomposition Products:** Sulfur and carbon oxides formed when burned.

**Hazardous Polymerization:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### IMMEDIATE HEALTH EFFECTS:

**Acute Oral Toxicity:** The oral LD50 in the rat is 8.4 g/kg. The acute oral toxicity is based on test results for TERTIARY BUTYL MERCAPTAN.

**Acute Dermal Toxicity:** The dermal LD50 in the rabbit is 20.8 g/kg. The acute dermal toxicity is based on test results for TERTIARY BUTYL MERCAPTAN.

**Acute Inhalation Toxicity:** The inhalation LC50 in the rat is 26,432 ppm after 4 hour(s) exposure. The acute inhalation toxicity is based on test results for TERTIARY BUTYL MERCAPTAN.

**Eye Irritation:** This material is irritating to the eyes. The eye irritation score in the rabbit is 8.8 for 24 hour(s) exposure. The eye irritation hazard is based on test results for TERTIARY BUTYL MERCAPTAN.

**Skin Irritation:** This material is not expected to be irritating to the skin. The primary dermal irritation score in the rabbit is 0.5 after 24 hour(s) occluded exposure. The dermal irritation hazard is based on test results for TERTIARY BUTYL MERCAPTAN.

**Sensitization:** Dermal - This material is a sensitizer in the guinea pig based on test results for TERTIARY BUTYL MERCAPTAN.

### ADDITIONAL TOXICOLOGY INFORMATION:

This product contains TERTIARY BUTYL MERCAPTAN (TBM).

**Genotoxicity:** Negative (AMES test and In Vitro Sister Chromatid Exchange using Chinese Hamster Ovary Cells);

**Positive Mouse Lymphoma Forward Mutational Assay**

**Developmental/reproductive:** Doses (11,99, 195 ppm) Rat and Mice - NOAEL >195 ppm

**Target Organ Toxicity:** Doses (9,97, 196 ppm - 13 weeks) Rats - LOAEL 9 ppm (kidney lesion)

## SECTION 12 ECOLOGICAL INFORMATION

### ECOTOXICITY:

This material is expected to be toxic to aquatic organisms.

The 48 hour(s) LC50 for water flea (*Daphnia magna*) is <0.22 mg/l. This information is based on test data from the component: N-PROPYL MERCAPTAN.

The 96 hour(s) LC50 for rainbow trout (*Salmo gairdneri*) is 34 mg/l. This information is based on test data from the component: TERTIARY BUTYL MERCAPTAN.

The 48 hour(s) EC50 for water flea (*Daphnia magna*) is 6.7 mg/l. This information is based on test data from the component: TERTIARY BUTYL MERCAPTAN.

The 72 hour(s) EC50 for green algae (*Selenastrum capricornutum*) is 13 mg/l. This information is based on test data from the component: TERTIARY BUTYL MERCAPTAN.

### ENVIRONMENTAL FATE:

This material is expected to be readily biodegradable. The results of a 28-day ready biodegradability test (% degraded): 18%

**SECTION 13 DISPOSAL CONSIDERATIONS**

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.

**SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**Shipping Descriptions per regulatory authority.****US DOT**

MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (tert-Butyl mercaptan and Isopropyl mercaptan), 3, UN3336, II

**ICAO / IATA**

MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (tert-Butyl mercaptan and Isopropyl mercaptan), 3, UN3336, II

**IMO / IMDG**

MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (tert-Butyl mercaptan and Isopropyl mercaptan), 3, UN3336, II,  
(-26°C)

**RID / ADR**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (tert-Butyl mercaptan and Isopropyl mercaptan), 3, II,  
ADR

**Additional Information: MARINE POLLUTANT (PROPANETHIOLS AND BUTYL MERCAPTANS)**

**SECTION 15 REGULATORY INFORMATION****SARA 311/312 CATEGORIES:**

1. Immediate (Acute) Health Effects:	YES
2. Delayed (Chronic) Health Effects:	NO
3. Fire Hazard:	YES
4. Sudden Release of Pressure Hazard:	NO
5. Reactivity Hazard:	NO

**REGULATORY LISTS SEARCHED:**

01 = CA Prop 65	16 = FDA 177	31 = OSHA Carcinogen
02 = LA RTK	17 = FDA 178	32 = OSHA Highly Hazardous
03 = MA RTK	18 = FDA 179	33 = RCRA Waste Appendix VIII
04 = MN Hazardous Substance	19 = FDA 180	34 = RCRA Waste D-List
05 = NJ RTK	20 = FDA 181	35 = RCRA Waste P-List
06 = PA RTK	21 = FDA 182	36 = RCRA Waste U-List

Revision Number: 1  
Revision Date: 05/07/2004

6 of 9

SCENTINEL® E GAS ODORANT  
MSDS : 93850



07 = CAA Section 112 HAPs	22 = FDA 184	37 = SARA Section 311/312
08 = CWA Section 307	23 = FDA 186	38 = SARA Section 313
09 = CWA Section 311	24 = FDA 189	39 = TSCA 12 (b)
10 = DOT Marine Pollutant	25 = IARC Group 1	40 = TSCA Section 4
11 = FDA 172	26 = IARC Group 2A	41 = TSCA Section 5(a)
12 = FDA 173	27 = IARC Group 2B	42 = TSCA Section 8(a) CAIR
13 = FDA 174	28 = IARC Group 3	43 = TSCA Section 8(a) PAIR
14 = FDA 175	29 = IARC Group 4	44 = TSCA Section 8(d)
15 = FDA 176	30 = NTP Carcinogen	45 = WHIMS - IDL

The following components of this material are found on the regulatory lists indicated.

TERTIARY BUTYL MERCAPTAN	3, 5, 6
ISOPROPYL MERCAPTAN	3, 4, 5
N-PROPYL MERCAPTAN	3, 4, 5, 45

CERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
TERTIARY BUTYL MERCAPTAN	100 lbs	None	129.87 lbs

#### WHMIS CLASSIFICATION:

Class D, Division 2, Subdivision B: Toxic Material  
 Skin Sensitization  
 Skin or Eye Irritation

#### CHEMICAL INVENTORY LISTINGS:

AUSTRALIA: All the components of this material are listed on the Australian Inventory of Chemical Substances (AICS).  
 CANADA: All the components of this material are on the Canadian Domestic Substances List (DSL).

PEOPLE'S REPUBLIC OF CHINA: All the components of this product are listed on the draft Inventory of Existing Chemical Substances in China.

EUROPEAN UNION: All the components of this material are in compliance with the EU Seventh Amendment Directive 92/32/EEC.

JAPAN: All the components of this product are on the Existing & New Chemical Substances (ENCS) inventory in Japan, or have an exemption from listing.

KOREA: All the components of this product are on the Existing Chemicals List (ECL) in Korea.

PHILIPPINES: All the components of this product are listed on the Philippine Inventory of Chemicals and Chemical Substances (PICCS).

UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

#### EU RISK AND SAFETY PHRASES:

R36: Irritating to eyes.

R43: May cause sensitization by skin contact.

R65: Harmful: may cause lung damage if swallowed.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R67: Vapors may cause drowsiness and dizziness.

S2: Keep out of the reach of children.

S24: Avoid contact with skin.

S25: Avoid contact with eyes.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37: Wear suitable gloves.

S62: If swallowed do not induce vomiting: seek medical advice immediately and show this container or label.

S36/37: Wear suitable protective clothing and gloves.

EU Symbols: F Xn

#### SECTION 16 OTHER INFORMATION

**NFPA RATINGS:** Health: 2 Flammability: 3 Reactivity: 0 Special: NA

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*-Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA).

**REVISION STATEMENT:** This revision updates all sections of the MSDS please review.

#### ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV	Threshold Limit Value	TWA	- Time Weighted Average
STEL	Short-term Exposure Limit	PEL	- Permissible Exposure Limit
ACGIH	American Conference of - Government Industrial Hygienists	OSHA	- Occupational Safety & Health
NIOSH	National Institute of Safety & Health	NFPA	- National Fire Protection Agency
WHMIS	Workplace Hazardous Materials - Information System	IRAC	- Intl. Agency for Research on Cancer
EINECS	European Inventory of existing - Commercial Chemical Sales	RCRA	- Resource Conservation Recovery Act
SARA	Superfund Amendments and - Reauthorization Act.	TSCA	- Toxic Substance Control Act
EC50	Effective Dose	LC50	- Lethal Concentration
LD50	Lethal Dose	CAS	- Chemical Abstract Service Number
NDA	No Data Available	NA	- Not Applicable
<=	Less Than or Equal To	>=	- Greater Than or Equal To
CNS	Central Nervous System	MAK	- Germany Maximum Concentration Values

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by EHS Product Stewardship Group, Chevron Phillips Chemical Company LP, 10001 Six Pines Drive, The Woodlands, TX 77380



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.