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ETHYL MERCAPTAN- MATERIAL SAFETY DATA SHEET

TABLE OF CONTENTS:

1. [Chemical Product and Company Identification](#)
2. [Composition, Information on Ingredients](#)
3. [Hazards Identification](#)
4. [First Aid Measures](#)
5. [Fire Fighting Measures](#)
6. [Accidental Release Measures](#)
7. [Handling and Storage](#)
8. [Exposure Controls, Personal Protection](#)
9. [Physical and Chemical Properties](#)
10. [Stability and Reactivity](#)
11. [Toxicological Information](#)
12. [Ecological Information](#)
13. [Disposal Considerations](#)
14. [Transport Information](#)
15. [Regulatory Information](#)
16. [Other Information](#)

24 Hour EMERGENCY CONTACT

U.S- CHEMTREC 1-800-424-9300

CANADA- CANUTEC 613-996-6666

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

[Up to Table of Contents](#)

[of Contents](#)

Matheson Tri-Gas, Inc.

The telephone numbers listed below are emergency numbers, please contact your local branch for routine inquiries.

USA

959 Route 46 East
Parsippany, New Jersey
07054-0624 USA
Phone: 973-257-1100

CANADA

530 Watson Street
Whitby, Ontario
L1N 5R9 Canada
Phone: 905-668-3570

SUBSTANCE: ETHYL MERCAPTAN

SYMBOL: C₂H₆S

TRADE NAMES/SYNONYMS:

ETHANETHIOL; ETHYL SULFHYDRATE; MERCAPTOETHANE; ETHYL HYDROSULFIDE;
ETHYL THIOALCOHOL; THIOETHANOL; THIOETHYL ALCOHOL; LPG ETHYL MERCAPTAN
1010; UN 2363; O-2712; 958-T; 7171-T; MAT09070; RTECS KI9625000

CHEMICAL FAMILY: mercaptans

CREATION DATE: Jan 24 1989

REVISION DATE: Mar 16 1999

2. COMPOSITION, INFORMATION ON INGREDIENTS

[Up to Table of](#)

[Contents](#)

COMPONENT: ETHYL MERCAPTAN

CAS NUMBER: 75-08-1

EC NUMBER (EINECS): 200-837-3

EC INDEX NUMBER: 016-022-00-9

PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

[Up to Table of Contents](#)

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=0



WHMIS CLASSIFICATION: BD2

EC CLASSIFICATION (ASSIGNED):

F Highly Flammable

Xn Harmful

R 11-20

EC Classification may be inconsistent with independently-researched data.



EMERGENCY OVERVIEW:

Color: colorless

Physical Form: liquid

Odor: garlic odor

Major Health Hazards: central nervous system depression

Physical Hazards: Flammable liquid and vapor. Vapor may cause flash fire.

POTENTIAL HEALTH EFFECTS:

INHALATION:

Short Term Exposure: irritation, nausea, difficulty breathing, headache, symptoms of drunkenness, bluish skin color, convulsions, coma

Long Term Exposure: no information on significant adverse effects

SKIN CONTACT:

Short Term Exposure: irritation

Long Term Exposure: no information on significant adverse effects

EYE CONTACT:

Short Term Exposure: irritation

Long Term Exposure: no information on significant adverse effects

INGESTION:

Short Term Exposure: sore throat, nausea, stomach pain

Long Term Exposure: no information on significant adverse effects

CARCINOGEN STATUS:

OSHA: N

NTP: N

IARC: N

4. FIRST AID MEASURES

[Up to Table of Contents](#)

INHALATION:

Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

SKIN CONTACT:

Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.

EYE CONTACT:

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

INGESTION:

Never make an unconscious person vomit or drink fluids. Give sodium bicarbonate solution. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

ANTIDOTE:

amyl nitrite, inhalation; sodium nitrite, intravenous; pyridoxine, intravenous; urea, intravenous. CAUTION! Get medical attention immediately.

NOTE TO PHYSICIAN:

For ingestion, consider gastric lavage.

5. FIRE FIGHTING MEASURES

[Up to Table of Contents](#)

FIRE AND EXPLOSION HAZARDS:

Severe fire hazard. Moderate explosion hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

EXTINGUISHING MEDIA:

alcohol resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

FIRE FIGHTING:

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Water may be ineffective.

FLASH POINT:

-54.9 F (-48.3 C) (CC)

LOWER FLAMMABLE LIMIT:

2.8%

UPPER FLAMMABLE LIMIT:

18%

AUTOIGNITION:

572 F (300 C)

FLAMMABILITY CLASS (OSHA):

IA

6. ACCIDENTAL RELEASE MEASURES

[Up to Table of Contents](#)

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

[Up to Table of Contents](#)

Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

[Contents](#)

[Up to Table of](#)

EXPOSURE LIMITS:**ETHYL MERCAPTAN:**

10 ppm (25 mg/m³) OSHA ceiling
0.5 ppm (1.3 mg/m³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
0.5 ppm (1.3 mg/m³) ACGIH TWA
0.5 ppm (1.3 mg/m³) NIOSH recommended ceiling 15 minute(s)

VENTILATION: Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

5 ppm

Any chemical cartridge respirator with organic vapor cartridge(s).
Any supplied-air respirator.

12.5 ppm

Any supplied-air respirator.
Any powered, air-purifying respirator with organic vapor cartridge(s).

25 ppm

Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
Any air-purifying respirator with a full facepiece and an organic vapor canister.
Any supplied-air respirator with a full facepiece.
Any powered, air-purifying respirator with a full facepiece and organic vapor cartridge(s).
Any self-contained breathing apparatus with a full facepiece.
Any supplied-air respirator with a full facepiece.

500 ppm

Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying respirator with a full facepiece and an organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Any self-contained breathing apparatus with a full facepiece.

9. PHYSICAL AND CHEMICAL PROPERTIES

[Up to Table of Contents](#)

PHYSICAL STATE: liquid

COLOR: colorless

ODOR: garlic odor

MOLECULAR WEIGHT: 62.14

MOLECULAR FORMULA: C₂-H₆-S

BOILING POINT: 95 F (35 C)

FREEZING POINT: -227 F (-144 C)

VAPOR PRESSURE: 442 mmHg @ 20 C

VAPOR DENSITY (air=1): 2.14

SPECIFIC GRAVITY (water=1): 0.8453 @ 25 C

WATER SOLUBILITY: 6.7% @ 20 C

PH: Not available

VOLATILITY: Not available

ODOR THRESHOLD: 0.001 ppm

EVAPORATION RATE: Not available

VISCOSITY: 0.3155 cP @ 20 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: alcohol, ether, naphtha

10. STABILITY AND REACTIVITY

[Up to Table of Contents](#)

REACTIVITY:

Contact with water or moist air may form flammable and/or toxic gases or vapors.

CONDITIONS TO AVOID:

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.

INCOMPATIBILITIES:

acids, oxidizing materials, combustible materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of sulfur

POLYMERIZATION:

Will not polymerize.

11. TOXICOLOGICAL INFORMATION

[Up to Table of Contents](#)

ETHYL MERCAPTAN:

IRRITATION DATA:

500 mg/24 hour(s) skin-rabbit mild; 84 mg eyes-rabbit; 100 mg/24 hour(s) eyes-rabbit moderate

TOXICITY DATA:

4420 ppm/4 hour(s) inhalation-rat LC50; 682 mg/kg oral-rat LD50

ACUTE TOXICITY LEVEL:

Moderately Toxic: inhalation, ingestion

TARGET ORGANS:

central nervous system

12. ECOLOGICAL INFORMATION

[Up to Table of Contents](#)

ECOTOXICITY DATA:**FISH TOXICITY:**

20000 ug/L 0.033 hour(s) (Behavior) Aholehole (Kuhlia sandvicensis)

INVERTEBRATE TOXICITY:

170 ug/L 48 hour(s) LC50 (Mortality) Water flea (Daphnia magna)

13. DISPOSAL CONSIDERATIONS

[Up to Table of Contents](#)

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

[Up to Table of Contents](#)

U.S. DOT 49 CFR 172.101. SHIPPING NAME-UN NUMBER; HAZARD CLASS; PACKING GROUP; LABEL:

Ethyl mercaptan-UN2363; 3; I; Flammable liquid



15. REGULATORY INFORMATION

[Up to Table of Contents](#)

U.S. REGULATIONS:

TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): N

SARA SECTION 302 (40CFR355.30): N

SARA SECTION 304 (40CFR355.40): N

SARA SECTION 313 (40CFR372.65): N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: Y

CHRONIC: N

FIRE: Y

REACTIVE: N

SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 200-837-3

EC RISK AND SAFETY PHRASES:

R 11	Highly flammable.
R 20	Harmful by inhalation.
S 2	Keep out of reach of children.
S 16	Keep away from sources of ignition - No smoking.
S 25	Avoid contact with eyes.

16. OTHER INFORMATION

[Up to Table of Contents](#)

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