MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.  
150 Allen Road Suite 302  
Basking Ridge, New Jersey 07920  
Information: 1-800-416-2505  

Emergency Contact:  
CHEMTREC 1-800-424-9300  
Calls Originating Outside the US:  
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: ETHYL BENZENE

TRADE NAMES/SYNONYMS:  
MTG MSDS 185; BENZENE, ETHYL-; EB; PHENYLETHANE; ETHYL BENZENE; ETHYL BENZOL; ALPHA-METHYLTOLUENE; UN 1175; C8H10; MAT08780

CHEMICAL FAMILY: hydrocarbons, aromatic

CREATION DATE: Jan 24 1989  
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: ETHYL BENZENE  
CAS NUMBER: 100-41-4  
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3  FIRE=3  REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless  
PHYSICAL FORM: liquid  
ODOR: aromatic odor

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression, suspect cancer hazard (in animals)  
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation (possibly severe), chest pain, difficulty breathing, headache,
drowsiness, dizziness, loss of coordination, coma
LONG TERM EXPOSURE: irritation, headache, drowsiness, emotional disturbances, cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe)
LONG TERM EXPOSURE: irritation
EYE CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe)
LONG TERM EXPOSURE: irritation
INGESTION:
SHORT TERM EXPOSURE: nausea, vomiting, stomach pain, aspiration hazard
LONG TERM EXPOSURE: no information on significant adverse effects

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, consider gastric lavage and activated charcoal slurry.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular 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: 59 F (15 C) (CC)  
LOWER FLAMMABLE LIMIT: 0.8%  
UPPER FLAMMABLE LIMIT: 6.7%  
AUTOIGNITION: 810 F (432 C)  
FLAMMABILITY CLASS (OSHA): IB

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:  
Reduce vapors with water spray. Stay upwind and keep out of low areas.

SOIL RELEASE:  
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:  

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. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
ETHYL BENZENE:
100 ppm (435 mg/m³) OSHA TWA
125 ppm (543 mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
100 ppm ACGIH TWA
125 ppm ACGIH STEL
100 ppm (435 mg/m³) NIOSH recommended TWA 10 hour(s)
125 ppm (545 mg/m³) NIOSH recommended STEL

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

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. 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.
800 ppm
Any air-purifying half-mask respirator equipped with organic vapor cartridge(s).
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any powered, air-purifying respirator with organic vapor cartridge(s).
Any supplied-air respirator.
Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted 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 a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** liquid
**COLOR:** colorless
**ODOR:** aromatic odor
**MOLECULAR WEIGHT:** 106.17
**MOLECULAR FORMULA:** C-H3-C-H2-C6-H5
**BOILING POINT:** 277 F (136 C)
**FREEZING POINT:** -139 F (-95 C)
**VAPOR PRESSURE:** 7.1 mmHg @ 20 C
**VAPOR DENSITY (air=1):** 3.66
**SPECIFIC GRAVITY (water=1):** 0.8670
**WATER SOLUBILITY:** 0.015%
**PH:** Not available
**VOLATILITY:** 100%
**ODOR THRESHOLD:** 140 ppm
**EVAPORATION RATE:** <1 (butyl acetate=1)
**VISCOSITY:** 0.64 cP @ 25 C
**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available
**SOLVENT SOLUBILITY:**
  - Soluble: alcohol, ether, benzene, sulfur dioxide, carbon tetrachloride
  - Insoluble: ammonia

10. STABILITY AND REACTIVITY

**REACTIVITY:** Stable at normal temperatures and pressure.

**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, bases, oxidizing materials, combustible materials

**HAZARDOUS DECOMPOSITION:**
Thermal decomposition products: oxides of carbon

**POLYMERIZATION:** Will not polymerize.

11. TOXICOLOGICAL INFORMATION
ETHYL BENZENE:
IRRITATION DATA: 15 mg/24 hour(s) open skin-rabbit mild; 500 mg eyes-rabbit severe
TOXICITY DATA: 55000 mg/m3/2 hour(s) inhalation-rat LC50; >5000 mg/kg skin-rabbit LD50; 3500 mg/kg oral-rat LD50
LOCAL EFFECTS:
Irritant: inhalation, skin, eye
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation, dermal absorption
TARGET ORGANS: central nervous system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: May cross the placenta.

12. ECOLOGICAL INFORMATION

FATE AND TRANSPORT:
KOW: 154170.05 (log = 5.196) (estimated from water solubility)
KOC: 44668.36 (log = 4.657) (estimated from water solubility)
HENRY'S LAW CONSTANT: 6.6 E -3 atm-m3/mol
BIOCONCENTRATION: 36.39 (estimated from water solubility)
AQUATIC PROCESSES: 2.6730095 hours (River Model: 1 m deep, 1 m/s flow, 3 m/s wind)
ENVIRONMENTAL SUMMARY: Relatively non-persistent in the environment. Not expected to leach through the soil or the sediment. Accumulates very little in the bodies of living organisms. Highly volatile from water.

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION
U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Ethylbenzene
ID NUMBER: UN1175
HAZARD CLASS OR DIVISION: 3
PACKING GROUP: II
LABELING REQUIREMENTS: 3

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Ethylbenzene
UN NUMBER: UN1175
CLASS: 3
PACKING GROUP/CATEGORY: II

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
ETHYL BENZENE: 1000 LBS RQ


SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
ETHYL BENZENE


STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
ETHYL BENZENE
Cancer (Jun 11, 2004)

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: B2.
NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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