

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: BUTADIENE, INHIBITED

TRADE NAMES/SYNONYMS:

MTG MSDS 16; 1,3-BUTADIENE; BIVINYL; BIETHYLENE; PYRROLYLENE; VINYLETHYLENE; DIVINYL; BUTA-1,3-DIENE; ALPHA,GAMMA-BUTADIENE; ERYTHRENE; METHYLALLENE; BUTADIENE; UN 1010; C4H6; MAT26710; RTECS EI9275000

CHEMICAL FAMILY: hydrocarbons, aliphatic

CREATION DATE: Jan 24 1989

REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: BUTADIENE, INHIBITED
CAS NUMBER: 106-99-0
PERCENTAGE: >99.0

COMPONENT: (1,1-DIMETHYLETHYL)-1,2-BENZENEDIOL
CAS NUMBER: 27213-78-1
PERCENTAGE: 0.1-0.2

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=2

EMERGENCY OVERVIEW:

COLOR: colorless

PHYSICAL FORM: gas

ODOR: distinct odor

MAJOR HEALTH HAZARDS: central nervous system depression, cancer hazard (in humans)

PHYSICAL HAZARDS: Flammable gas. May cause flash fire. May polymerize. Containers may rupture or



explode. May form peroxides during prolonged storage.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, nausea, headache, drowsiness, dizziness, loss of coordination

LONG TERM EXPOSURE: digestive disorders, kidney damage, liver enlargement, reproductive effects, cancer

SKIN CONTACT:

SHORT TERM EXPOSURE: blisters, frostbite

LONG TERM EXPOSURE: no information on significant adverse effects

EYE CONTACT:

SHORT TERM EXPOSURE: irritation, blurred vision

LONG TERM EXPOSURE: no information is available

INGESTION:

SHORT TERM EXPOSURE: frostbite

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: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

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

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire 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: carbon dioxide, regular dry chemical

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. 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: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.

FLASH POINT: -105 F (-76 C)
LOWER FLAMMABLE LIMIT: 2.0%
UPPER FLAMMABLE LIMIT: 11.5%
AUTOIGNITION: 788 F (420 C)

6. ACCIDENTAL RELEASE MEASURES

WATER RELEASE:

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering. 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

STORAGE: Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Store outside or in a detached building. Secure to prevent tipping. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. See original container for storage recommendations. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

BUTADIENE, INHIBITED:

1,3-BUTADIENE:

1 ppm OSHA TWA

5 ppm OSHA STEL 15 minute(s)

0.5 ppm OSHA action level

2 ppm ACGIH TWA

NIOSH TWA (lowest feasible concentration)

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

EYE PROTECTION: For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.

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

OSHA Standard:

Respirator selection should comply with 29 CFR 1910.134 and 29 CFR 1910.1051.

NIOSH Recommendations:

At any detectable concentration -

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 canister providing protection against the compound of concern.

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: gas

COLOR: colorless

ODOR: distinct odor

MOLECULAR WEIGHT: 54.09

MOLECULAR FORMULA: C-H₂:C-H-C-H:C-H₂

BOILING POINT: 23 F (-5 C)

FREEZING POINT: -164 F (-109 C)

VAPOR PRESSURE: 910 mmHg @ 20 C

VAPOR DENSITY (air=1): 1.87

SPECIFIC GRAVITY (water=1): 0.6211 @ 20 C

WATER SOLUBILITY: 0.05% @ 20 C

PH: Not applicable

VOLATILITY: Not applicable

ODOR THRESHOLD: 1.6 ppm

EVAPORATION RATE: >25 (butyl acetate=1)

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

SOLVENT SOLUBILITY:

Soluble: organic solvents, ether, acetone, benzene, ethanol, cyclohexane, methanol, carbon tetrachloride, chloroform

10. STABILITY AND REACTIVITY

REACTIVITY: May polymerize. Avoid contact with light or storage and use above room temperature. May explode if exposed to shock, friction or heating.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: metal carbide, metal salts, combustible materials, metals, oxidizing materials, halogens, metal oxides

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

POLYMERIZATION: May polymerize. Avoid contact with heat, air, light, initiators or curing agents. May polymerize with evolution of heat. Closed containers may rupture violently.

11. TOXICOLOGICAL INFORMATION

BUTADIENE, INHIBITED:

TOXICITY DATA: 128000 ppm/4 hour(s) inhalation-rat LC50; 5480 mg/kg oral-rat LD50

CARCINOGEN STATUS: OSHA: Carcinogen; NTP: Known Human Carcinogen; IARC: Human Limited Evidence, Animal Sufficient Evidence, Group 2A; ACGIH: A2 -Suspected Human Carcinogen; EC: Category 2

ACUTE TOXICITY LEVEL:

Slightly Toxic: ingestion

Relatively Non-toxic: inhalation

TARGET ORGANS: central nervous system

TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

ADDITIONAL DATA: Alcohol may enhance the toxic effects.

12. ECOLOGICAL INFORMATION

Not available

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. D003.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Butadienes, stabilized

ID NUMBER: UN1010

HAZARD CLASS OR DIVISION: 2.1

LABELING REQUIREMENTS: 2.1

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden

CARGO AIRCRAFT ONLY: 150 kg



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Butadienes, stabilized

UN NUMBER: UN1010

CLASS: 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

1,3-Butadiene: 10 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):

ACUTE: Yes
CHRONIC: Yes
FIRE: Yes
REACTIVE: Yes
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65):
1,3-Butadiene

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65:

Known to the state of California to cause the following:

1,3-Butadiene

Cancer (Apr 01, 1988)

Developmental toxicity (Apr 16, 2004)

Male reproductive toxicity (Apr 16, 2004)

Female reproductive toxicity (Apr 16, 2004)

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: A, B1, D2A.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Listed on inventory.

16. OTHER INFORMATION

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