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2-BUTENE- MATERIAL SAFETY DATA SHEET

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24 Hour EMERGENCY CONTACT

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

CANADA- CANUTEC 613-996-6666

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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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: TRANS-2-BUTENE

SYMBOL: C₄H₈

TRADE NAMES/SYNONYMS:

BETA-BUTYLENE; (C)-2-BUTENE; BETA-TRANS-BUTYLENE; LOW-BOILING BUTENE-2;
TRANS-1,2-DIMETHYLETHYLENE; TRANS-BUTENE; UN 1012; MAT23705

CHEMICAL FAMILY: hydrocarbons, aliphatic

CREATION DATE: Jan 24 1989

REVISION DATE: Mar 16 1999

2. COMPOSITION, INFORMATION ON INGREDIENTS

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COMPONENT: 1-PENTENE

CAS NUMBER: 109-67-1

EC NUMBER (EINECS): 203-694-5

PERCENTAGE: >99.0

COMPONENT: INHIBITOR

CAS NUMBER: Not assigned.

EC NUMBER: Not assigned.

PERCENTAGE: <0.1

3. HAZARDS IDENTIFICATION

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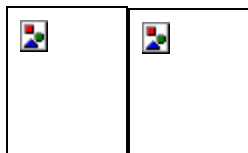
NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=0

WHMIS CLASSIFICATION: AB

EC CLASSIFICATION (ASSIGNED):

F+ Extremely Flammable

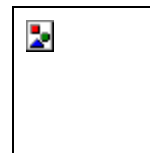
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EMERGENCY OVERVIEW:

Physical Form: gas

Major Health Hazards: central nervous system depression, difficulty breathing



Physical Hazards: Flammable gas. May cause flash fire.

POTENTIAL HEALTH EFFECTS:

INHALATION:

Short Term Exposure: vomiting, headache, symptoms of drunkenness, disorientation, suffocation, convulsions, coma

Long Term Exposure: no information is available

SKIN CONTACT:

Short Term Exposure: irritation (possibly severe)

Long Term Exposure: no information is available

EYE CONTACT:

Short Term Exposure: frostbite, blurred vision

Long Term Exposure: no information is available

INGESTION:

Short Term Exposure: frostbite

Long Term Exposure: no information is available

CARCINOGEN STATUS:

OSHA: N

NTP: N

IARC: N

4. FIRST AID MEASURES

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INHALATION:

When safe to enter area, remove from exposure. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Keep warm and at rest. Get medical attention immediately.

SKIN CONTACT:

Wash if needed. If frostbite, freezing, or cryogenic burns occur, warm affected area in warm water. If this is not available, gently wrap affected parts in blankets. Allow circulation to return naturally. Get medical attention immediately.

EYE CONTACT:

Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains. Continue irrigating with normal saline until ready to transport to hospital. Cover with sterile bandages. Get medical attention immediately.

INGESTION:

It is unlikely that emergency treatment will be required. Get medical attention, if needed..

NOTE TO PHYSICIAN:

For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

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FIRE AND EXPLOSION HAZARDS:

Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition

sources and flash back. Vapor/air mixtures are explosive above flash point.

EXTINGUISHING MEDIA:

carbon dioxide, regular dry chemical

Large fires: 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: 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). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). Consider downwind evacuation if material is leaking. Stop flow of gas.

FLASH POINT:

-99 F (-73 C)

LOWER FLAMMABLE LIMIT:

1.8%

UPPER FLAMMABLE LIMIT:

9.7%

AUTOIGNITION:

615 F (324 C)

6. ACCIDENTAL RELEASE MEASURES

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OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. 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.

7. HANDLING AND STORAGE

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Store and handle in accordance with all current regulations and standards.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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EXPOSURE LIMITS:

TRANS-2-BUTENE:

No occupational exposure limits established.

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 with a faceshield. 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: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any supplied-air respirator with a full facepiece that is operated in a 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.

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

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PHYSICAL STATE: gas

ODOR: Not available

MOLECULAR WEIGHT: 56.11

MOLECULAR FORMULA: C₄H₈

BOILING POINT: 34 F (1 C)

FREEZING POINT: -159 F (-106 C)

VAPOR PRESSURE: 1592 mmHg @ 21 C

VAPOR DENSITY (air=1): 1.95

SPECIFIC GRAVITY: 0.613 @ 15.5 C

WATER SOLUBILITY: insoluble

PH: Not applicable

VOLATILITY: Not applicable

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not available

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: organic solvents

10. STABILITY AND REACTIVITY

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REACTIVITY:

Stable at normal temperatures and pressure.

CONDITIONS TO AVOID:

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES:

oxidizing materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

POLYMERIZATION:

Will not polymerize.

11. TOXICOLOGICAL INFORMATION

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TRANS-2-BUTENE:

TARGET ORGANS:

central nervous system

12. ECOLOGICAL INFORMATION

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Not available

13. DISPOSAL CONSIDERATIONS

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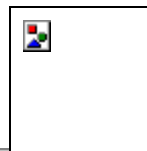
Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

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

Compressed gases, flammable, n.o.s. (trans-2-butene)-UN1954; 2.1; Flammable gas



15. REGULATORY INFORMATION

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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: Y

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 210-855-3

EC RISK AND SAFETY PHRASES:

16. OTHER INFORMATION

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