HALOTHANE - 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

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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: HALOTHANE
SYMBOL: C₂HBrClF₃

TRADE NAMES/SYNONYMS:
FLUOTHANE (R); 1,1,1-TRIFLUORO-2-CHLORO-2-BROMOETHANE; 2,2,2-TRIFLUORO-1-CHLORO-1-BROMOETHANE; BROMOCHLOROTRIFLUOROETHANE; HALOTAN; FLUOROTANE; OCHALOTHANE; NARCOTANE; 1,1,1-TRIFLUORO-2-BROMO-2-CHLOROETHANE; FLUOTHANE; C₂HBrClF₃; MAT10625; RTECS KH6550000

CHEMICAL FAMILY: halogenated, aliphatic

CREATION DATE: Jan 24 1989
REVISION DATE: Mar 16 1999

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: HALOTHANE
CAS NUMBER: 151-67-7
EC NUMBER (EINECS): 205-796-5
PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2  FIRE=0  REACTIVITY=0
WHMIS CLASSIFICATION: D2
EC CLASSIFICATION (ASSIGNED):
Xi Irritant
R 36-37-38

EMERGENCY OVERVIEW:
Physical Form: liquid
Odor: sweet odor, pleasant odor
Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation

POTENTIAL HEALTH EFFECTS:
INHALATION:
   Short Term Exposure: irritation, nausea, vomiting, liver damage
   Long Term Exposure: kidney damage, liver damage

SKIN CONTACT:
   Short Term Exposure: irritation
   Long Term Exposure: same as effects reported in short term exposure

EYE CONTACT:
   Short Term Exposure: irritation, tearing
   Long Term Exposure: same as effects reported in short term exposure

INGESTION:
   Short Term Exposure: same as effects reported in short term inhalation, symptoms of drunkenness
   Long Term Exposure: no information on significant adverse effects

CARCINOGEN STATUS:
OSHA: N
NTP: N
IARC: N

4. FIRST AID MEASURES

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:
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:
If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention, if needed.

NOTE TO PHYSICIAN:
For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS:
Negligible fire hazard.

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. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**FLASH POINT:**
No data available.

### 6. ACCIDENTAL RELEASE MEASURES

**OCCUPATIONAL RELEASE:**
Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry.

### 7. HANDLING AND STORAGE
Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

### 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**EXPOSURE LIMITS:**

**HALOTHANE:**
50 ppm (404 mg/m3) ACGIH TWA
2 ppm (16 mg/m3) NIOSH recommended ceiling 1 hour(s) (halogenated anesthetic gas)

**VENTILATION:** Provide local exhaust ventilation system. 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:** 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 chemical cartridge respirator with organic vapor cartridge(s).
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.
**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

PHYSICAL STATE: liquid

ODOR: sweet odor, pleasant odor

MOLECULAR WEIGHT: 197.39

MOLECULAR FORMULA: C2-H-BR-CL-F3

BOILING POINT: 122 F (50 C)

FREEZING POINT: Not available

VAPOR PRESSURE: Not available

VAPOR DENSITY: Not available

SPECIFIC GRAVITY (water=1): 1.87

WATER SOLUBILITY: 0.345%

PH: Not available

VOLATILITY: Not available

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not available

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:
Soluble: petroleum ether, acetone, ether, benzene, fat solvents

10. STABILITY AND REACTIVITY

REACTIVITY:
Stable at normal temperatures and pressure.

CONDITIONS TO AVOID:
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

INCOMPATIBILITIES:
metals, combustible materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: chlorine, halides, halogens, oxides of carbon

POLYMERIZATION:
Will not polymerize.
11. TOXICOLOGICAL INFORMATION

HALOTHANE:

IRRITATION DATA:
100 mg eyes - rabbit severe

TOXICITY DATA:
29000 ppm inhalation - rat LC50; 5680 mg/kg oral - rat LD50

CARCINOGEN STATUS:
IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; ACGIH: A4 - Not Classifiable as a Human Carcinogen

LOCAL EFFECTS:
Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:
Slightly Toxic: inhalation, ingestion

MUTAGENIC DATA:
Available.

REPRODUCTIVE EFFECTS DATA:
Available.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

No classification assigned.

15. REGULATORY INFORMATION

U.S. REGULATIONS:
TSCA INVENTORY STATUS: N
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: N
  REACTIVE: N
  SUDDEN RELEASE: N


STATE REGULATIONS:
  California Proposition 65: Y
  Known to the state of California to cause the following:
    Halothane
      Developmental toxicity (Sep 01, 1996)

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 205-796-5

EC RISK AND SAFETY PHRASES:

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<tbody>
<tr>
<td>R36</td>
<td>Irritating to eyes.</td>
</tr>
<tr>
<td>R37</td>
<td>Irritating to respiratory system.</td>
</tr>
<tr>
<td>R38</td>
<td>Irritating to skin.</td>
</tr>
<tr>
<td>S2</td>
<td>Keep out of reach of children.</td>
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<tr>
<td>S24</td>
<td>Avoid contact with skin.</td>
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<tr>
<td>S25</td>
<td>Avoid contact with eyes.</td>
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<tr>
<td>S26</td>
<td>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</td>
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<tr>
<td>S46</td>
<td>If swallowed, seek medical advice immediately and show this container or label.</td>
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16. OTHER INFORMATION

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