
1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the preparation

Product Name: "Halon 1301, Freon FE 1301"
Chemical Name: Bromotrifluoromethane
CAS No.: 75-63-8
Chemical Formula: CBrF₃
EINECS Number: 200-887-6

1.2. Use of the preparation

The intended or recommended use of this preparation is as a FIRE EXTINGUISHING AGENT.

1.3. Company identification

Manufacturer/Supplier: ANSUL INCORPORATED
Address: One Stanton Street, Marinette, WI 54143-2542
Prepared by: Safety and Health Department
Phone: 715-735-7411
Internet/Home Page: <http://www.ansul.com>
Date of Issue: September, 2004

1.4. Emergency telephone

CHEMTREC 800-424-9300 or 703-527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. Ingredient Name: Bromotrifluoromethane.
Chemical Formula: CBrF₃.
CAS No.: 75-63-8.
EINECS Number: 200-887-6.
Concentration, Wt %: >99 %.
Hazard Identification: See Heading 3.

3. HAZARDS IDENTIFICATION

FOR HUMANS:**Product:**

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|--------------------|--|
| EU Classification: | Nonflammable Gas. |
| R Phrases: | None. |
| S Phrases: | 9 Keep container in a well ventilated place. |

Limit Values for Exposure:

| | |
|--|--------------------------------------|
| ACGIH TLV (US): | 1,000 ppm, 6,090 mg/m ³ . |
| MAK (DE): | 6,100 mg/m ³ . |
| Short Term Exposure, 60 min., 3 times: | 12,200 mg/m ³ . |
| VME (France): | 6,100 mg/m ³ . |

Neither this preparation nor the substances contained in it have been listed as carcinogenic by National Toxicology Program, I.A.R.C., or OSHA.

AS PART OF GOOD INDUSTRIAL AND PERSONAL HYGIENE AND SAFETY PROCEDURE, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes, and clothing.

SIGNS AND SYMPTOMS:**Acute Exposure:**

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| Eye Contact: | The liquid form of this material can produce chilling sensations and discomfort. |
| Skin Contact: | Evaporation from the skin can produce chilling sensations, frostbite can occur. |
| Inhalation: | Vapor is heavier than air and can cause suffocation by reducing oxygen availability for breathing. Breathing very high concentrations of vapor can cause lightheadedness, giddiness, shortness of breath, and may lead to narcosis, cardiac irregularities, unconsciousness or even death. |

Ingestion:

Ingestion is not likely to occur since this material is a gas at room temperature.

Chronic Overexposure:

None known when occupational exposures are below the TLV.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Cardiac problems and Central Nervous System problems.

FOR ENVIRONMENT:

Relative to the environment, this material has an ozone depletion potential and a global warming potential.

See Heading 12.

4. FIRST AID MEASURES

- Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes while holding lids open. If redness, itching, or a burning sensation develops, get medical attention. Treat for frostbite if necessary.
- Skin Contact: Wash the material off the skin with copious amounts of soap and water for at least 15 minutes. If redness, itching, or a burning sensation develops, get medical attention. Treat for frostbite if necessary.
- Inhalation: Remove victim to fresh air. If cough or other respiratory symptoms occur, consult medical personnel. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Consult medical personnel.
- Ingestion: Ingestion is not likely to occur since this material is a gas at room temperature.

NOTE TO PHYSICIAN: Product is an asphyxiant and can induce cardiac muscle sensitization to circulating epinephrine-like compounds. Do NOT give adrenalin or similar sympathomimetic drugs. Do NOT allow victim to exercise until 24 hours following specific exposures. Freeze burns of mucosal tissue can develop following specific exposures.

5. FIRE-FIGHTING MEASURES

This preparation is an extinguishing media.

Use water to cool fire-exposed cylinders or other containers.

Containers are equipped with pressure and temperature relief devices, but rupture may occur under fire conditions and toxic decomposition by-products may be formed if used in fires over 900 °C.

There are NO extinguishing media which must not be used for safety reasons.

Self-contained breathing apparatus with full facepiece and protective clothing when re-entering unventilated fire areas where product has been used.

6. ACCIDENTAL RELEASE MEASURES

For personal protection: Prevent skin and eye contact, see Heading 8.

Evacuate area; ventilate to outside atmosphere.

Cool or remove hot metal surfaces or source of non-extinguished flames.

Clean up: This product will vaporize and dissipate into the atmosphere. See Heading 13.

Relative to the environment, this material has an ozone depletion potential and a global warming potential.

See Heading 12.

7. HANDLING AND STORAGE

7.1. Handling

Care should be taken in handling all chemical substances and preparations.

See incompatibility information in Heading 10.

7.2. Storage

Store as a liquefied compressed gas in DOT approved pressure vessels away from high temperatures.

If cylinder is not connected to a system, it must be safety capped to protect against actuation of valve and release of agent.

See incompatibility information in Heading 10.

Relative to the environment, this material has an ozone depletion potential and a global warming potential.

See Heading 12.

7.3. Specific use

The intended or recommended use of this preparation is as a FIRE EXTINGUISHING AGENT.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

Limit Values for Exposure:

| | |
|--|--------------------------------------|
| ACGIH TLV (US): | 1,000 ppm, 6,090 mg/m ³ . |
| MAK (DE): | 6,100 mg/m ³ . |
| Short Term Exposure, 60 min., 3 times: | 12,200 mg/m ³ . |
| VME (France): | 6,100 mg/m ³ . |

8.2. Exposure controls

8.2.1. Occupational exposure controls

Eye wash and safety showers are good safety practice in work areas when working with liquids.

8.2.1.1. Respiratory protection

Mechanical ventilation is recommended in low areas or indoors where vapors may collect.

Local exhaust is recommended for most exposures.

Not normally necessary if controls are adequate. For high concentrations exceeding 10%, or if exposure is prolonged, use positive pressure air supplied respirator.

8.2.1.2. Hand protection

Use plastic gloves when handling the liquid.

8.2.1.3. Eye protection

Chemical goggles recommended as mechanical barrier.

Full faceshield in addition if splashing of liquid form is possible.

8.2.1.4. Skin protection

Standard work clothes should provide all protection which is necessary.

8.2.2. Environmental exposure controls

Relative to the environment, this material has an ozone depletion potential and a global warming potential.

See Heading 12.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information

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|-------------|----------------|
| Appearance: | Colorless gas. |
| Odor: | Sweet. |

9.2. Important health, safety, and environmental information

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|---|--|
| pH: | Not applicable. |
| Boiling point/boiling range: | -57.8 °C (-72.0 °F) @ 1013 hPa. |
| Flash point: | None. |
| Flammability (solid/gas): | Not flammable. |
| Explosive properties: | Not explosive. |
| Oxidizing properties: | Not an oxidizer. |
| Vapor Pressure: | 199.0 psi @ 70 °F; 14,500 hPa @ 20 °C. 28,300 hPa @ 50 °C. |
| Relative Density (Water = 1): | 1.57. |
| Solubility: | |
| – Water solubility: | Negligible. |
| – Fat solubility: | Not determined. |
| Partition coefficient, n-octanol/water (Log Pow): | 1.86 @ 25 °C. |
| Viscosity: | Not determined. |
| Vapor density (Air = 1): | 5.2. |
| Evaporation rate: | Not applicable. |

9.3. Other information

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|----------------------------|------------------|
| Auto-ignition temperature: | Does not ignite. |
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10. STABILITY AND REACTIVITY

10.1. Conditions to avoid

Can be decomposed under fire conditions above 900 °F.

10.2. Materials to avoid

Active metals and fires involving metal hydrides.

10.3. Hazardous decomposition products

Normally stable.

Hazardous polymerization will NOT occur.

Combustion or decomposition products above 900 °F include hydrogen bromide and hydrogen fluoride. These by-products have a sharp irritating odor. They are dangerous even in low concentrations, and in sufficient concentrations can result in personal injury or death.

11. TOXICOLOGICAL INFORMATION

Product:

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| Acute Toxicity Data: | Inhalation LC ₅₀ (rat) | 211.2 mg/L/4 hrs. |
| | Inhalation LC ₅₀ (rat) | 381 mg/L. |
| | Inhalation LC ₅₀ (rat) | 840,000 ppm, remainder of inspired gas mixture was oxygen. |
| Chronic Toxicity Data: | Inhalation (rat), for 126 days, dosed 6 hours per day, 5 days per week, at 21,000 ppm. No adverse effects of toxicological significance (NOAEL). | |
| Ames Test: | Negative. | |
| Reproduction Toxicity: | Inhalation (rat), at 50,000 ppm. Neither maternal or teratogenic Effect (NOAEL for both). | |
| Other Information: | Inhalation (dog) at 40 % (400,000 ppm) resulted in ventricular effects and marked excitement. Inhalation (human); no cardiac problems were reported during human exposure to 4 to 7 % in hypobaric chambers and at 5 to 7 % at pressurized altitudes of 1,000 to 20,000 feet in aircraft flight tests using 40,000 to 70,000 ppm of bromotrifluoromethane. Inhalation (human); exposure at 10 to 15 % caused decrease in performance of 5 to 6 psychomotor tasks. At 15 %, a feeling of impending unconsciousness developed. Auriculo ventricular dissociation and premature ventricular contractions were recorded at the highest concentration (maximum 16.9 %). | |

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

Not determined.

12.2. Mobility

The adsorption Koc for bromotrifluoromethane can be estimated to be approximately 244.8. This indicates that the compound will be moderately mobile in soil.

12.3. Persistence and degradability

Photodegradation: >50 % after 44 years.

12.4. Bioaccumulative potential

Not determined.

12.5. Other adverse effects

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|---|--|
| Ozone depletion potential: | Expected to destroy ozone in the upper atmosphere. |
| Photochemical ozone creation potential: | None. |
| Global warming potential: | May contribute to global warming. |

13. DISPOSAL CONSIDERATIONS

Relative to the environment, this material has an ozone depletion potential and a global warming potential. See Heading 12.

Dispose of in compliance with national, regional, and local provisions that may be in force.

14. TRANSPORT INFORMATION

Hazard Class or Division: Class 2.2, UN1009.
 Label: Nonflammable gas.
 Bromotrifluoromethane or Refrigerant gas, R 13B1.

For additional transport information, contact Ansul Incorporated.

Relative to the environment, this material has an ozone depletion potential and a global warming potential.
 See Heading 12.

15. REGULATORY INFORMATION

EU Classification: Nonflammable Gas.
 R Phrases: None.
 S Phrases: 9 Keep container in a well ventilated place.

Limit Values for Exposure:
 ACGIH TLV (US): 1,000 ppm, 6,090 mg/m³.
 MAK (DE): 6,100 mg/m³.
 Short Term Exposure, 60 min., 3 times: 12,200 mg/m³.
 VME (France): 6,100 mg/m³.

EINECS Status: All components are included in EINECS inventories or are exempt from listing.
 EPA TSCA Status: All components are included in TSCA inventories or are exempt from listing.
 Canadian DSL (Domestic Substances List): All components are included in the DSL or are exempt from listing.

Environmental restrictions: Known to destroy ozone in the upper atmosphere.
 Restrictions on Marketing and Use: Check on restrictions because of the environmental effects.
 Refer to any other national measures that may be relevant.

16. OTHER INFORMATION**(HMIS) HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS:**

| | | |
|---------------|----------|--------------------|
| HEALTH: | <u>1</u> | 4. Severe Hazard |
| FLAMMABILITY: | <u>0</u> | 3. Serious Hazard |
| REACTIVITY: | <u>0</u> | 2. Moderate Hazard |
| | | 1. Slight Hazard |
| | | 0. Minimal Hazard |

(WHMIS) CANADIAN WORKPLACE HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS:

This product is rated **A – Compressed gas**.

Format is from directive 2001/58/EC.

EINECS data is from <http://exb.jrc.it/existing-chemicals/>

Data used to compile the data sheet is from Ansul Material Safety Data Sheet, May, 2002.

The EU Classification has been added in accordance with Directive 1999/45/EC and information in the EINECS ESIS files (Existing Substances Information System).

Toxicological information added from the EINECS ESIS (Existing Substances Information System).

Physical data added from the EINECS ESIS (Existing Substances Information System).

17. DISCLAIMER

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