



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

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"FREON" 13B1 Refrigerant  
2046FR Revised 28-APR-2004  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"FREON" is a registered trademark of DuPont.

Corporate MSDS Number : DU001083  
Formula : CBrF3

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont Fluoroproducts  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.  
302-774-1000)  
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.  
703-527-3887)  
Medical Emergency : 1-800-441-3637 (outside the U.S.  
302-774-1000)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
*METHANE, BROMOTRIFLUORO-	75-63-8	100

\* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

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HAZARDS IDENTIFICATION  
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# Potential Health Effects

Skin contact may include frostbite if liquid contacts the skin or other membranes.

Eye contact may include eye irritation with discomfort, tearing, or blurring of vision.

Inhalation may include nonspecific discomfort, such as nausea, headache, or weakness; or temporary central nervous system depression with effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. Very

## (HAZARDS IDENTIFICATION - Continued)

high temperatures (such as a fire) may cause hydrogen fluoride or hydrogen bromide gases to form, both of which are extremely irritating.

Higher exposures may cause temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation.

Individuals with preexisting diseases of the central nervous system or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures.

## Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

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FIRST AID MEASURES  
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## First Aid

## INHALATION

If high concentrations are inhaled, immediately remove to fresh air. Keep persons calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

## SKIN CONTACT

In case of skin contact, flush skin with plenty of water for 15 minutes. Treat for frostbite if necessary by gently warming affected area.

## EYE CONTACT

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

## INGESTION

Ingestion is not considered a potential route of exposure.

## Notes to Physicians

Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should only be used with special caution in situations of emergency life support.

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Flash Point : Will not burn  
Flammable limits in Air, % by Volume  
LEL : Not applicable  
UEL : Not applicable  
Autoignition : Not determined  
Autodecomposition : >850 C (>1562 F)

## Fire and Explosion Hazards:

Cylinders are equipped with temperature and pressure relief devices but may still rupture under fire conditions. Decomposition may occur.

## Extinguishing Media

As appropriate for combustibles in area.

## Fire Fighting Instructions

Use water spray or fog to cool containers. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

## Accidental Release Measures

Ventilate area-especially low or enclosed places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large leak or spill.

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HANDLING AND STORAGE  
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## Handling (Personnel)

Avoid breathing very high concentrations of vapors. Avoid contact of eyes or skin with liquid. Use with sufficient ventilation to keep employee exposure below recommended limits.

## (HANDLING AND STORAGE - Continued)

## Storage

Clean, dry area. Do not heat above 125 deg F.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## Engineering Controls

Normal ventilation for standard use procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

## Personal Protective Equipment

Impervious gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be worn as needed to prevent eye contact. Under normal manufacturing conditions no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large spill occurs.

## Exposure Guidelines

## Applicable Exposure Limits

METHANE, BROMOTRIFLUORO-	
PEL (OSHA)	: 1,000 ppm, 6,100 mg/m <sup>3</sup> , 8 Hr. TWA
TLV (ACGIH)	: 1,000 ppm, 6,090 mg/m <sup>3</sup> , 8 Hr. TWA
AEL * (DuPont)	: None Established

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Boiling Point	: -58 C (-72 F)
Vapor Pressure	: 235 psia at 25 deg C (77 deg F)
Vapor Density	: 5.14 (Air = 1.0) at 25 deg C (77 deg F)
% Volatiles	: 100 WT%
Evaporation Rate	: (CCl <sub>4</sub> = 1) Greater than 1
Solubility in Water	: 0.03 WT% @ 25 C (77 F)
pH	: Neutral
Odor	: Slight ethereal
Form	: Liquified gas
Color	: Clear, colorless
Liquid Density	: 1.54 g/cc at 25 deg C (77 deg F)

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STABILITY AND REACTIVITY  
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## Chemical Stability

Material is stable. However, avoid extended contact with open flames or temperature >1000 deg F.

## Incompatibility with Other Materials

Incompatible with alkali or alkaline earth metals- powdered Al, Zn, Be, etc.

## Polymerization

Polymerization will not occur.

## Other Hazards

Decomposition : Decomposition products are hazardous. This material may be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming free bromine and possibly carbonyl halides.

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TOXICOLOGICAL INFORMATION  
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## # Animal Data

Inhalation 1-hour LC50: >770,000 ppm in rats

The compound is untested for skin or eye irritancy, and for animal sensitization.

Exposure to large amounts by inhalation caused central nervous system depression. Cardiac sensitization was observed in dogs exposed to atmospheres containing 7.5% or more FC-13b1. Repeated exposures to lethal or near lethal amounts caused lung irritation and degeneration of the liver and kidneys.

No animal test reports are available to define carcinogenic, or reproductive hazards. Tests in animals demonstrate no developmental toxicity.

This compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals.

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

Comply with all Federal, State and local regulations.  
Reclaim by distillation or remove to permitted waste  
disposal facility.

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TRANSPORTATION INFORMATION  
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## Shipping Information

DOT/IMO  
Proper Shipping Name : BROMOTRIFLUOROMETHANE  
Hazard Class : 2.2  
UN No. : 1009  
DOT/IMO Label : NONFLAMMABLE GAS

## Shipping Containers

Cylinders  
Ton Tanks

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REGULATORY INFORMATION  
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## U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

## TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes  
Chronic : No  
Fire : No  
Reactivity : No  
Pressure : Yes

## LISTS:

Extremely Hazardous Substance -No  
CERCLA Hazardous Substance -No  
Toxic Chemicals -Yes

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OTHER INFORMATION  
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## NFPA, NPCA-HMIS

NPCA-HMIS Rating  
Health : 1  
Flammability : 0  
Reactivity : 1

(Continued)

Personal Protection rating to be supplied by user depending on use conditions.

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The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : MSDS Coordinator  
> : DuPont Fluoroproducts  
Address : Wilmington, DE 19898  
Telephone : (800) 441-7515

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS