
1. IDENTIFICATION

Product Name	Bromochlorodifluoromethane (CBrClF ₂) (Pressurized with Nitrogen)
Other Names	Halon 1211
Recommended use of the chemical and restrictions on use	
Identified uses	Fire Extinguishing Agent
Restrictions on Use	Consult applicable fire protection codes
Company Identification	UTC Aerospace Systems 4200 Airport Drive, NW Wilson, NC 27896
Customer Information Number	(252) 237-7004
Emergency Telephone Number	
3E Company	1-800-451-8346 Site Code: 33067
Issue Date	May 18, 2017
Supersedes Date	March 10, 2016 Rev B

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

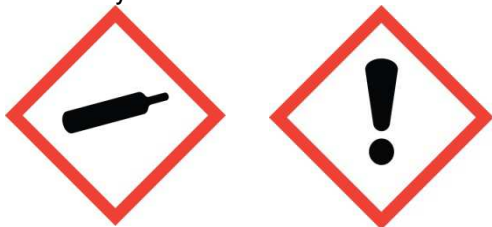
2. HAZARD IDENTIFICATION

Hazard Classification

Gas under pressure – Liquefied gas
Specific Target Organ Toxicity Single Exposure – Category 3
Simple Asphyxiant
Hazardous to the Ozone Layer – Category 1 (This classification not adopted by OSHA.)

Label Elements

Hazard Symbols



Signal Word: Warning

Hazard Statements

Contents under pressure; may explode if heated.
May cause drowsiness or dizziness.
May displace oxygen and cause rapid suffocation.
Harms public health and the environment by destroying ozone in the upper atmosphere.

2. HAZARD IDENTIFICATION

Precautionary Statements

Prevention

Do not enter confined space unless adequately ventilated.
In case of inadequate ventilation wear respiratory protection.
Avoid breathing gas, vapors or spray.
Use only outdoors or in a well ventilated area.

Response

If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison control center or doctor if you feel unwell.

Storage

Protect from sunlight.
Store in well-ventilated place.
Keep container tightly closed.
Keep locked up.

Disposal

Dispose of contents and container in accordance with local regulation.
Refer to manufacturer or supplier for information on recovery and recycling.

Other Hazards

Direct contact with the cold gas or liquid can cause freezing of exposed tissues.

Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	0%
Acute dermal toxicity	0%
Acute inhalation toxicity	0%
Acute aquatic toxicity	100%

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:

This product is a substance.

Component	CAS Number	Concentration
Bromochlorodifluoromethane	353-59-3	100%

Note: Product uses nitrogen as the expellant.

4. FIRST- AID MEASURES

Description of necessary first-aid measures

Eyes

Immediately flood the eye with plenty of warm water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Flush with water. Obtain medical attention if frostbite or blistering occurs or redness persists.

Ingestion

Ingestion is not considered a potential route of exposure.

4. FIRST- AID MEASURES

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Most important symptoms/effects, acute and delayed

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

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.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

This preparation is used as an extinguishing agent and therefore is not a problem when trying to control a fire. Use extinguishing agent appropriate to other materials involved. Keep pressurized containers and surroundings cool with water spray as they may rupture or burst in the heat of a fire.

Specific hazards arising from the chemical

Pressurized containers may explode in heat of fire. Predominant decomposition products are hydrogen fluoride and hydrogen bromide in fire situations. Products are irritant and potentially toxic if fire extinguishment is delayed.

Special Protective Actions for Fire-Fighters

Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Remove leaking cylinder to a safe place. Ventilate the area. Leaks inside confined spaces may cause suffocation as oxygen is displaced and should not be entered without a self-contained breathing apparatus.

Environmental Precautions

None

Methods and materials for containment and cleaning up

None

7. HANDLING AND STORAGE

Precautions for safe handling

Wear appropriate protective clothing. Prevent skin and eye contact.

7. HANDLING AND STORAGE

Conditions for safe storage

Pressurized containers should be properly stored and secured to prevent falling or being knocked over. Do not drag, slide or roll pressurized containers. Do not drop pressurized containers or permit them to strike against each other. Never apply flame or localized heat directly to any part of the pressurized or plastic container. Store pressurized and plastic containers away from high heat sources. Storage area should be: cool - dry - well ventilated - under cover - out of direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Bromochlorodifluoromethane

None established.

Appropriate engineering controls

Use with adequate ventilation. There should be local procedures for the selection, training, inspection and maintenance of this equipment. When used in large volumes, use local exhaust ventilation.

Individual protection measures

Respiratory Protection

Not normally required. In oxygen deficient atmospheres, use a self-contained breathing apparatus, as an air purifying respirator will not provide protection.

Skin Protection

Gloves

Eye/Face Protection

Chemical goggles or safety glasses with side shields.

Body Protection

Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Agent

Appearance

Physical State

Liquefied gas under pressure

Color

Colorless

Odor

Sweet

Odor Threshold

No data available

pH

Not applicable

Specific Gravity

1.83

Boiling Range/Point (°C/F)

-4°C/ 24.8°F

Melting Point (°C/F)

No data available

Flash Point (PMCC) (°C/F)

Not flammable

Vapor Pressure

1770 mg Hg @ 70°F and 1 atmosphere

Evaporation Rate (BuAc=1)

No data available

Solubility in Water

Insoluble

Vapor Density (Air = 1)

5.8

VOC (g/l)

No data available

VOC (%)

No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Partition coefficient (n-octanol/water)	No data available
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	Not explosive
Lower explosive limit	Not explosive
Flammability (solid, gas)	Not flammable
Expellant	
Appearance	
Physical State	Compressed gas
Color	Colorless
Odor	None
Odor Threshold	No data available
pH	Not applicable
Specific Gravity	1.251 g/l (Nitrogen)
Boiling Range/Point (°C/F)	-196 °C/-321 °F(Nitrogen)
Melting Point (°C/F)	-210 °C/-346 °F(Nitrogen)
Flash Point (PMCC) (°C/F)	Not flammable
Vapor Pressure	No data available
Evaporation Rate (BuAc=1)	No data available
Solubility in Water	No data available
Vapor Density (Air = 1)	Not applicable
VOC (g/l)	None
VOC (%)	None
Partition coefficient (n-octanol/water)	No data available
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	Not explosive
Lower explosive limit	Not explosive
Flammability (solid, gas)	Not flammable

10. STABILITY AND REACTIVITY

Reactivity

Pressurized containers may rupture or explode if exposed to heat.

Chemical Stability

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Extremely high temperatures

10. STABILITY AND REACTIVITY

Incompatible Materials

Alkali or alkaline earth metals - powdered metals (ex. aluminum, zinc, etc.)

Hazardous Decomposition Products

Hydrogen bromide - hydrogen chloride - hydrogen fluoride - carbonyl halides - free halogens - phosgene

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Bromochlorodifluoromethane

Inhalation LC50 (Rat) 85,000 - 100,000 ppm 4hr

Inhalation 15 min LC50(rat) 200,000 ppm

Specific Target Organ Toxicity (STOT) – single exposure

Bromochlorodifluoromethane: Cardiac sensitization (canine) NOAEL (5 min-ppm) 5000, LOAEL (5 min-ppm) 10,000, EC50 19,000 ppm

Human exposure studies: Brief (<50 sec) exposures at 40,000-50,000 ppm caused vertigo and paresthesia. Pharmacologic responses (blood pressure: ventricular premature beats) only at 1000 ppm (several minutes).

Specific Target Organ Toxicity (STOT) – repeat exposure

Bromochlorodifluoromethane: Short term repeated exposure toxicity studies in rat (6hr/day for 15 days): LOAEL 10,000 ppm, NOAEL 3300 ppm.

Serious Eye damage/Irritation

No data available.

Skin Corrosion/Irritation

No data available.

Respiratory or Skin Sensitization

No data available.

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity

Bromochlorodifluoromethane: Positive in one of 5 strains in Ames test (In Vitro Bacteria) and negative in In Vitro Mammalian cells for mutagenicity.

Reproductive Toxicity

Bromochlorodifluoromethane:

Developmental toxicity study (rat) NOAEL: 50,000 ppm

Reproductive toxicity study(rat) NOAEL: 25,000 ppm

Aspiration Hazard

Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available.

Mobility in soil

No relevant studies identified.

Persistence/Degradability

No relevant studies identified.

Bioaccumulative Potential

No relevant studies identified.

Other adverse effects

Causes harm to the ozone layer. The ozone depleting potential for bromochlorodifluoromethane is 3.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of container in accordance with all applicable local and national regulations. Refer to manufacturer or supplier for information on recovery and recycling. Do not cut, puncture or weld on or near to the pressurized container. If spilled, expellant will vaporize to the atmosphere.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Compressed Gas, N.O.S., (Bromochlorodifluoromethane, Nitrogen), (2.2) UN1956
UN Proper Shipping Name	Compressed Gas, N.O.S., (Bromochlorodifluoromethane, Nitrogen)
UN Class	(2.2)
UN Number	UN1956
UN Packaging Group	None
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.

Containers must be shipped with the appropriate safety caps.

15. REGULATORY INFORMATION

United States TSCA Inventory

All components of this product are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Canada DSL Inventory

All ingredients in this product have been verified for inclusion on the Domestic Substance List (DSL).

SARA Title III Sect. 311/312 Categorization

Immediate (Acute) Health Hazard - Pressure Hazard

15. REGULATORY INFORMATION

SARA Title III Sect. 313

This product contains a chemical which is listed in Section 313 at or above de minimis concentrations: Bromochlorodifluoromethane (353-59-3)

California Proposition 65

This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

NFPA Ratings

NFPA Code for Health - 1
NFPA Code for Flammability - 0
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards - None

HMIS Ratings

HMIS Code for Health - 1
HMIS Code for Flammability - 0
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend

ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
EC50: Effect Concentration 50%
IARC: International Agency for Research on Cancer
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
RQ: Reportable Quantity
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Revision Date: May 18, 2017
Replaces: March 10, 2016, Rev. B
Changes made: Updated to GHS Classification.

Information Source and References

This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

16. OTHER INFORMATION

Prepared By: EnviroNet LLC.

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