


61423      DWG NO: 172498      SH: 1      REV: B

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REVISIONS				
LTR	DESCRIPTION	DATE	BY	APPD
B	REDRAWN; CONVERTED TO SDS FORMAT	16/02/16	DRW	

This document does not contain any US export controlled technical data.

CONTR NO:		DRWN: P.ANDERSON	DATE: (YY/MM/DD) 14/05/28	 <b>Kidde Aerospace &amp; Defense</b> Kidde Technologies, Inc. 4200 Airport Dr. NW Wilson, NC 27896-8630			
P/C: 174		CHECK: R.FOSTER	14/08/25				
USED ON:		DSGN SUPV:		<b>Bromochlorodifluoromethane          (CBrClF2)          (Pressurized with Nitrogen)</b>			
		ENG: B.STANDIFER	14/05/28				
		MFG ENG:					
		QA:		SIZE A	CAGE CODE 61423	DWG NO 172498	REV B
SIMILAR TO	NEXT ASSY	CM:		SCALE --	PROD. REL DATE 14/08/25	SHEET 1 of 10	

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**1. IDENTIFICATION**

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<b>Product Name</b>	Bromochlorodifluoromethane (CBrClF <sub>2</sub> ) (Pressurized with Nitrogen)
<b>Other Names</b>	Halon 1211
<b>Recommended use of the chemical and restrictions on use</b>	
<b>Identified uses</b>	Fire Extinguishing Agent
<b>Restrictions on Use</b>	Consult applicable fire protection codes
<b>Company Identification</b>	UTC Aerospace Systems 4200 Airport Drive, NW Wilson, NC 27896
<b>Customer Information Number</b>	(253) 237-7004
<b>Emergency Telephone Number</b>	
<b>3E Company</b>	1-800-451-8386 Site Code: 33067
<b>Issue Date</b>	May 30, 2015
<b>Supersedes Date</b>	July 10, 2013 Rev A

*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)*

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**2. HAZARD IDENTIFICATION**

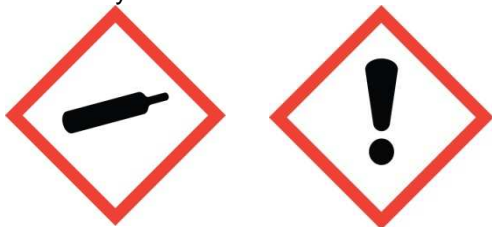
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**Hazard Classification**

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.

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**2. HAZARD IDENTIFICATION**

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**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%

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Synonyms:**

This product is a substance.

<b>Component</b>	<b>CAS Number</b>	<b>Concentration</b>
Bromochlorodifluoromethane	353-59-3	100%

**Note: Product uses nitrogen as the expellant.**

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**4. FIRST- AID MEASURES**

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**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.

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#### 4. FIRST- AID MEASURES

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**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.

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#### 5. FIRE - FIGHTING MEASURES

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**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.

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#### 6. ACCIDENTAL RELEASE MEASURES

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**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

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#### 7. HANDLING AND STORAGE

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**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

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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

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**10. STABILITY AND REACTIVITY**

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**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

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**10. STABILITY AND REACTIVITY**

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**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

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**11. TOXICOLOGICAL INFORMATION**

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**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**

<b>DOT CFR 172.101 Data</b>	Compressed Gas, N.O.S., (Bromochlorodifluoromethane, Nitrogen), (2.2) UN1956
<b>UN Proper Shipping Name</b>	Compressed Gas, N.O.S., (Bromochlorodifluoromethane, Nitrogen)
<b>UN Class</b>	(2.2)
<b>UN Number</b>	UN1956
<b>UN Packaging Group</b>	None
<b>Classification for AIR Transportation (IATA)</b>	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



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**15. REGULATORY INFORMATION**

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**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.

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**16. OTHER INFORMATION**

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**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: Rev B, May 30, 2015

Replaces: Rev. A, July 10, 2013

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.

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**16. OTHER INFORMATION**

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**Prepared By:** EnviroNet LLC.

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