



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

1. IDENTIFICATION

Product Name	Halotron-1 (Fire Extinguishing Agent with Expellant)
Other Names	HCFC Blend B, Halocarbon Agent
Recommended use of the chemical and restrictions on use	
Identified uses	Fire Extinguishing Agent
Restrictions on use	Consult applicable fire protection codes
Company Identification	Badger Fire Protection 1016 Corporate Park Drive Mebane, NC 27302 USA
Customer Information Number	(434)-964-3200
Emergency Telephone Number	
CHEMTREC Number	(800) 424-9300 (703) 527-3887 (International)
Issue Date	September 28, 2023
Supersedes Date	January 7, 2020

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

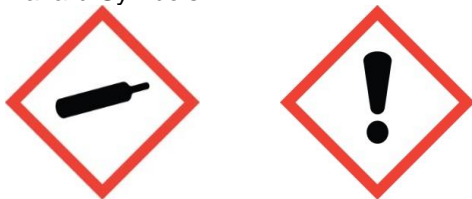
2. HAZARD IDENTIFICATION

Hazard Classification

Gas under pressure – liquefied gas
Specific Target Organ Toxicity Single Exposure – Category 3

Label Elements

Hazard Symbols



Signal Word: Warning

Hazard Statements

Contents under pressure; may explode if heated.
May cause drowsiness or dizziness.

Precautionary Statements

Prevention

Avoid breathing gas/vapors/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 center or doctor if you feel unwell.



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

2. HAZARD IDENTIFICATION

Storage

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

Disposal

Dispose of contents/container in accordance with local and national regulations.

Other Hazards

Inhalation of high concentrations of vapour may cause central nervous system effects such as dizziness, drowsiness, anesthesia, or unconsciousness. Misuse or intentional inhalation abuse may lead to death without warning.

Direct contact with the cold gas or liquid can cause freezing of exposed tissues. Avoid direct inhalation of undiluted gas. Can cause suffocation by reducing oxygen available for breathing

Specific Concentration Limits

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

Acute oral toxicity	1 – 10%
Acute dermal toxicity	1 – 10%
Acute inhalation toxicity	1 – 10%
Acute aquatic toxicity	1 – 10%

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CAS Number	Concentration*
2,2-dichloro-1,1,1-trifluoroethane	306-83-2	80 – 100%
Proprietary gas mixture	NA	3 – 7%

Note: The expellant is argon.

*Exact concentration withheld as trade secret.

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.

Inhalation

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



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

4. FIRST- AID MEASURES

Most important symptoms/effects, acute and delayed

Halotron I is a colorless volatile, pressurized liquid with a slight ether-like odor. Short-term exposure to high concentrations may result in central nervous system and cardiac effects. Long-term exposure to concentrations above recommended exposure limits may result in liver effects. High concentrations of 20,000 ppm (v/v) or higher, may cause cardiac arrhythmia.

Indication of immediate medical attention and special treatment needed

Notes to Physicians

This material may make the heart more susceptible to arrhythmias. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

In case of frostbite, place the frostbitten part in warm water. If warm water is not available or impractical to use, wrap the affected parts gently in blankets. DO NOT USE HOT WATER.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

Halotron-1 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 containers and surroundings cool with water spray as containers may rupture or burst in the heat of a fire. The concentrated agent when applied to fire can produce toxic by-products specifically hydrogen halides which can cause damage. Avoid inhalation of these materials by evacuating and ventilating the area.

Specific hazards arising from the chemical

Containers may explode in heat of fire. The concentrated agent when applied to fire can produce toxic by-products specifically hydrogen halides which can cause damage. Avoid inhalation of these materials by evacuating and ventilating the area.

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. Vapors can accumulate in low areas. Leaks inside confined spaces may cause suffocation as oxygen is displaced and should not be entered without a self-contained breathing apparatus.

Manufacturer's Recommended 1 Hr. Emergency Exposure Limit: 1000ppm (v/v)

Manufacturer's Recommended 1 Min. Emergency Exposure Limit: 2500ppm (v/v)

Environmental Precautions

Prevent material from entering waterways, soil or drains.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and transfer into suitable containers for recovery or disposal.



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

7. HANDLING AND STORAGE

Precautions for safe handling

Wear appropriate protective clothing. Prevent skin and eye contact.

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 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.

Workplace Environmental Exposure Level (chronic handling)

WEEL(AIHA)(8 hrs): 50 ppm (v/v), based on the primary component

Manufacturer's Recommended 1 Hr. Emergency Exposure Limit: 1000ppm (v/v)

Manufacturer's Recommended 1 Min. Emergency Exposure Limit: 2500ppm (v/v)

Exposure Level When Using Halotron I in a Fire Extinguisher

Exposure when using this material as a fire extinguishing agent - the exposure should not exceed 20,000 ppm (v/v). Guidelines for the safe minimum volume when this agent is used in a confined space are provided on the label of the extinguisher.

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 or odor becomes apparent, use local exhaust ventilation.

Individual protection measures

Respiratory Protection

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

Skin Protection

Neoprene, PVC or PVA gloves

Eye/Face Protection

Chemical goggles or safety glasses with side shields.

Body Protection

Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Agent – Halotron-1

Appearance

Physical State

Liquefied gas under pressure

Color

Colorless

Odor

Slight ether-like

Odor Threshold

No data available



SAFETY DATA SHEET

Halotron-1

(Fire Extinguishing Agent with Expellant)

9. PHYSICAL AND CHEMICAL PROPERTIES

pH	Not applicable
Relative Density (Air = 1)	5.14
Liquid Density	92.3 lb/ft ³ @ 77 °F 1.48 kg/l @ 25°C
Gas Density	~ 0.387 lb/ft ³ ~6.08 kg/m ³
Boiling Range/Point (°C/F)	27°C/80.6°F
Melting Point (°C/F)	No data available
Flash Point (°C/F)	Not flammable
Vapor Pressure of liquid	~ 11.2 psig @ 68°F 77 kPa @ 20°C
Evaporation Rate (BuAc=1)	Faster than water, slower than ether
Solubility in Water	0.39% wt @25°C/ 77°F, 1 atm.
Vapor Density (Air = 1)	approx. 6.08 kg/m ³ (0.387 lb./ft ³) at 25° C (77° F)
VOC (%)	No data available
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	No data available
Lower explosive limit	No data available
Flammability (solid, gas)	Not flammable

Expellant - Argon

Appearance		
	Physical State	Compressed gas
	Color	Colorless
Odor		None
Odor Threshold		No data available
pH		Not applicable
Specific Gravity		No data available
Boiling Range/Point (°C/F)		No data available
Melting Point (°C/F)		No data available
Flash Point (°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



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

10. STABILITY AND REACTIVITY

Reactivity

Decomposes on heating.

Chemical Stability

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Contact with incompatible materials

Incompatible Materials

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

Hazardous Decomposition Products

Hydrochloric and hydrofluoric acids - possibly carbonyl halides

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

2,2-dichloro-1,1,1-trifluoroethane

Simple asphyxiant

Inhalation 4 hour, LC50(rat) 32,000 ppm

Oral Approximate Lethal Dose, rat: 9000 mg/kg

Cardiac LOAEL: 2% vol.

Cardiac NOAEL: 1% vol.

Toxicological testing was performed on HCFC-123 by the Program for Alternative Fluorocarbon Testing (PAFT). Data from acute toxicity studies in this program demonstrated that HCFC-123 has very low toxicity by skin application or inhalation.

Proprietary gas mixture

Simple asphyxiant

Argon

Simple asphyxiant

Specific Target Organ Toxicity (STOT) – single exposure

2,2-dichloro-1,1,1-trifluoroethane: Rodent studies indicate this chemical is easily absorbed via inhalation. It distributes in all organs, more so in the liver. About 90% of inhaled HCFC-123 is eliminated via the lungs unchanged. The remaining amount is metabolized to trifluoroacetic acid and excreted in the urine. Small amounts of trifluoroacetylated proteins were detected in rats in laboratory studies.

Argon: Exposure to argon gas at high concentrations can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations can cause dizziness, shortness of breath, unconsciousness or asphyxiation.

Specific Target Organ Toxicity (STOT) – repeat exposure

2,2-dichloro-1,1,1-trifluoroethane: Long-term exposure in a two year study (6 hours/day, 5 days/week) at concentrations of 300, 1000 and 5000 ppm decreased body weight, serum cholesterol, triglycerides and glucose, and increased urinary fluoride concentrations in rats. However, survival was significantly improved in all exposed groups compared to control animals. Inhalation of 300, 1000 and 5000 ppm caused an increase in benign tumors of the liver, pancreas, and testis. Tumors occurred late in life and none were assessed to be life threatening. Tumor formation is thought to occur through non-genotoxic



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

11. TOXICOLOGICAL INFORMATION

Specific Target Organ Toxicity (STOT) – repeat exposure, continued

mechanisms associated with a peroxisome proliferating potential or with hormonal disturbances in older rats.

Exposure to dogs, guinea pigs or monkeys at 1000 ppm or greater for 6 hours per day, 7 days per week, for a total of 3 weeks, induced slight or mild liver damage with altered enzyme levels.

Serious Eye damage/Irritation

2,2-dichloro-1,1,1-trifluoroethane: Irritation and tearing may result. Mild to moderate reversible eye effects.

Skin Corrosion/Irritation

2,2-dichloro-1,1,1-trifluoroethane: Did not cause irritation in rabbit studies.

Respiratory or Skin Sensitization

No relevant studies identified.

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity

2,2-dichloro-1,1,1-trifluoroethane: inactive in several test-tube genetic damage studies except the human lymphocyte chromosome aberration assay and inactive in live animal genetic damage studies. Therefore, it is not considered genotoxic.

Reproductive Toxicity

2,2-dichloro-1,1,1-trifluoroethane: No effects to reproductive performance were seen in rats or harm to the unborn animals in rats or rabbits at 5000 and 10,000ppm.

Aspiration Hazard

Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity

2,2-dichloro-1,1,1-trifluoroethane

LC50 *Oncorhynchus mykiss* (rainbow trout) 55.5 mg/l 96 h

ErC50 *Pseudokirchneriella subcapitata* (green algae) 96.6 mg/l 96 h

EbC50 *Pseudokirchneriella subcapitata* (green algae) 67.8 mg/l 96 h

EC50 *Daphnia magna* (Water flea) 17.3 mg/l 48h

Mobility in soil

No relevant studies identified.

Persistence/Degradability

Biodegradability: 24%, not readily biodegradable

Bioaccumulative Potential

Bioaccumulation: Bio-concentration factor (BCF): 33, Bioaccumulation is unlikely

Other adverse effects

No relevant studies identified.



SAFETY DATA SHEET

Halotron-1

(Fire Extinguishing Agent with Expellant)

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of container in accordance with all applicable local and national regulations. Do not cut, puncture or weld on or near to the container. If spilled, contents will vaporize to the atmosphere.

14. TRANSPORT INFORMATION

Safety Data Sheet information is intended to address a specific material and not various forms or states of containment.

Special Precautions for Shipping:

Individuals must be certified as Hazardous Material Shipper for all transportation modes. Pressurized Fire Extinguishers are considered a hazardous material by the US Department of Transportation and Transport Canada.

Bulk Shipments:

DOT CFR 172.101 Data	Compressed Gases, n.o.s. (contains Tetrafluoromethane, Argon), 2.2, UN1956
UN Proper Shipping Name	Compressed Gases, n.o.s. (contains Tetrafluoromethane, Argon)
UN Class	(2.2) Non-Flammable Gas
UN Number	UN1956
UN Packaging Group	Not Applicable
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Classification for Water Transport IMDG	Consult current IMDG Regulations prior to shipping by water.

Fire Extinguishers:

DOT CFR 172.101 Data	Fire extinguishers, 2.2, UN1044
UN Proper Shipping Name	Fire extinguishers
UN Class	(2.2)
UN Number	UN1044
UN Packaging Group	Not applicable
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Classification for Water Transport IMDG	Consult current IMDG Regulations prior to shipping by water.

This section is believed to be accurate at the time of preparation. It is not intended to be a complete statement or summary of the applicable laws, rules, or hazardous material regulations, and is subject to change. Users have the responsibility to confirm compliance with all laws, rules, and hazardous material regulations in effect at the time of shipping.

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).



SAFETY DATA SHEET

Halotron-1 (Fire Extinguishing Agent with Expellant)

15. REGULATORY INFORMATION

SARA Title III Sect. 311/312 Categorization

Gas under pressure – Specific Target Organ Toxicity (single exposure)

SARA Title III Sect. 313

This product contains a chemical which is listed in Section 313 at or above de minimis concentrations:
2,2-dichloro-1,1,1-trifluoroethane (306-83-2)

16. OTHER INFORMATION

NFPA Ratings

NFPA Code for Health - 1

NFPA Code for Flammability - 0

NFPA Code for Reactivity - 1

NFPA Code for Special Hazards – None

Legend

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service

IARC: International Agency for Research on Cancer

LCLo: Lethal concentration low

N/A: Denotes no applicable information found or available

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

SDS: Safety Data Sheet

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

Revision Date: September 28, 2023

Replaces: January 7, 2020

Changes made: Updates to Sections 1 and 16.

Information Source and References

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

The information and recommendations presented in this SDS are based on sources believed to be accurate. Badger Fire Protection assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the material for their particular purposes. In particular, we make **NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED**, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use or disposal of the material is in accordance with applicable Federal, State, and local laws and regulations.