



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 944 Glenwood Station Lane, Suite 303 Charlottesville, VA 22901 USA
Customer Information Number	(434)-964-3200
Emergency Telephone Number	
CHEMTREC Number	(800) 424-9300 (703) 527-3887 (International)
Issue Date	April 10, 2015
Supersedes Date	February 9, 2015

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
Simple Asphyxiant
Specific Target Organ Toxicity Single Exposure – Category 2
Specific Target Organ Toxicity Repeat Exposure – Category 2

Label Elements

Hazard Symbols



Signal Word: Warning

Hazard Statements

Contents under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
May cause damage to organs (liver, central nervous system) through inhalation.
May cause damage to organs (liver) through prolonged or repeated exposure (inhalation).



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2. HAZARD IDENTIFICATION

Precautionary Statements

Prevention

Do not enter confined space unless adequately ventilated.
In case of inadequate ventilation wear respiratory protection.
Do not breathe fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response

Get medical advice/attention if you feel unwell.
If exposed or concerned: Call a poison center or doctor.

Storage

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

Disposal

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

Other Hazards

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. Breathing very high concentrations can cause dizziness, shortness of breath, unconsciousness or asphyxiation.

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

Synonyms: HCFC Blend B, Halocarbon Agent

This product is a mixture.

Component	CAS Number	Concentration
2,2-dichloro-1,1,1-trifluoroethane	306-83-2	85 – 95%
Proprietary gas mixture	NA	1 – 10%

Note: The expellant is argon.

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.



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4. FIRST- AID MEASURES

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.

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

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.

The use of catecholamines such as adrenaline, or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

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.

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

None

Methods and materials for containment and cleaning up

None



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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



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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	~ 0.385 lb/ft ³ ~6.17 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)	No data available
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



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10. STABILITY AND REACTIVITY

Reactivity

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 - flames

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

Dermal Approximate Lethal Dose, rat: >2000 mg/kg

Cardiac LOAEL: 2% vol.

Cardiac NOAEL: 1% vol.

Argon

Simple asphyxiant

Specific Target Organ Toxicity (STOT) – single exposure

2,2-dichloro-1,1,1-trifluoroethane: Adverse effects to the liver and central nervous system were observed in animal studies (inhalation.)

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: Adverse effects to the liver were observed in animal studies (inhalation.)

Serious Eye damage/Irritation

2,2-dichloro-1,1,1-trifluoroethane: In rabbit study, mild to moderate conjunctival irritation with no corneal or iritic involvement was observed in an unwashed rabbit eye. An eye dosed with the test substance and promptly washed had mild to slight transient corneal opacity and mild to moderate conjunctival irritation with no iritic involvement. Both eyes were normal within 3-7 days.

Skin Corrosion/Irritation

2,2-dichloro-1,1,1-trifluoroethane: Dermal exposure in rabbits did not result in any irritation.



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11. TOXICOLOGICAL INFORMATION

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: Not considered genotoxic based on animal and test-tube studies.

Reproductive Toxicity

2,2-dichloro-1,1,1-trifluoroethane: No affects 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 Fathead minnow 77mg/l 96hr

Mobility in soil

No relevant studies identified.

Persistence/Degradability

No relevant studies identified.

Bioaccumulative Potential

No relevant studies identified.

Other adverse effects

No relevant studies identified.

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. Specific volumes, pressures or hardware configurations containing such materials can dictate various different hazard classifications for transportation and labelling requirements. Under Federal Regulations only trained and qualified individuals are permitted to label and ship products following the applicable Department of Transportation (DOT), Federal Aviation Administration (FAA), Transport Canada (TC), International Maritime Dangerous Goods (IMDG) or International Air Transport Association (IATA) requirements.



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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, Delayed(Chronic) Health Hazard, Pressure hazard

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

HMIS Ratings

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

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: April 10, 2015
Replaces: February 9, 2015
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

Prepared By: EnviroNet LLC.

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