SAFETY DATA SHEET

Revision Date: October 08, 2024; Revision D

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name: Halotron® BrX (BTP)
Synonyms: 1-propene, 2-bromo-3,3,3-trifluoro-; propene, 2-bromo-3,3,3-trifluoro-; 2- bromo-3,3,3-trifluoropropene; 2-bromo-3,3,3-trifluoroprop-1-ene; 3,3,3- trifluoro-2-bromopropene; R-1233B1
Product Code(s): Reach Registration 01-2120043689-45-0000
Pre-Registration- UK-01-4566953204-1-0001

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Class ABC Extinguishant; Used in Models: 337, 537, 339, 347, 547, 349, 549, 351, 551

1.3 Details of the supplier of the safety data sheet

Amerex Corporation
7595 Gadsden Highway, P.O. Box 81
Trussville, AL 35173-0081
United States

Customer Information Number:
(205) 655-3271
info@amerex-fire.com

1.4 Emergency Telephone Number

Chemtrec 1(800) 424-9300 or
(703) 527–3887

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Aerosols - Category 3
Specific Target Organ Toxicity, Single exposure – Category 3
Reproductive Toxicity – Category 1B

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard Pictograms

Signal Word(s): Warning or Danger Hazard Statements

H229	Pressurized container; may burst if heated.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H360FD	May damage fertility or the unborn child through prolonged, repeated exposure.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing vapors/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	If exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

Note: Additional hazard information pertaining to this substance in the United States has been developed. See Regulatory Information in Section 15 for details.

2.3 Other Hazards

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration (by weight %)	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 1514-82-5 **EC-No/** 627-872-0 **Index-No.**	01-2120043689-45-0000	>99%	2-bromo-3,3,3-trifluoroprop-1-ene	N/A
CASRN N/A **EC-No/** N/A **Index-No.**	N/A	<1%	Proprietary stabilizer additives	See Section 11.1

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Eye Exposure: Flush eyes with fresh water and move exposed person to a non-contaminated area. Call a doctor if irritation or effects occur.

Skin Exposure: If significant exposure occurs, wash the exposed area immediately with large amounts of water. Remove contaminated clothing and footwear. Contact a physician if irritation occurs.

Inhalation: Remove person to fresh air and keep comfortable for breathing. Call a doctor if breathing difficulties occur.

Ingestion: Do not induce vomiting. Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Product is not expected to produce any irritation or corrosivity to the skin or eyes. Ingestion is not likely to occur in industrial use. Gross overexposure via inhalation may cause central nervous system effects such as dizziness, drowsiness, confusion, physical incoordination, anesthesia, or unconsciousness.

4.3 Indication of any immediate medical attention and special treatment needed

Call a doctor if eye or skin irritation, difficulty breathing, or ingestion occurs. At concentrations of 1.0% (v/v) or higher, may cause increased sensitivity of the heart to adrenaline, which might cause irregular heartbeats and possibly ventricular fibrillation or death.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishable media

Non-combustible. Use extinguishing media suitable for surrounding conditions.

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products:

There may be a release of toxic by-products, specifically hydrogen halides, which can cause damage. Avoid inhalation of these materials by evacuating and ventilating the area.

Unusual Fire and Explosion Hazards:

This material in air at both elevated pressure and temperature levels not commonly encountered may become combustible. Whether a mixture containing this material and air, or an oxygen enriched environment, becomes combustible depends on the inter-relationship of 1) the temperature, 2) the pressure, and 3) the proportion of oxygen. Weak combustion of vapors has been witnessed in air mixtures at pressures of 4.3 psig (19.0 psia) and 302°F (150°C) using a fuse wire ignition source. This agent is extremely effective as a fire extinguishing agent where it is applied to a fire as a spray or stream. This material should not, however, be used in firefighting applications or other applications where mixtures in air exceeding a few psig would be expected.

5.3 Advice for firefighters

In the case of a fire involving a bulk tank of the material, ensure that the area where the fire occurred is well ventilated before re-entering. Wear protective clothing, including a Self Contained Breathing Apparatus (SCBA), if large amounts are present. Use water spray or fog to cool storage containers to help prevent an uncontrolled pressure release of bulk tanks, if applicable.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Do not expose fire extinguishers for prolonged periods in close proximity to significant radiant heat sources, such as fire, as uncontrolled pressure releases may result. Avoid contact with skin, eyes, and clothing. For spills that might result in overexposure, evacuate the area and use protective gear and SCBAs.

6.2 Environmental precautions

Although this material is volatile and will quickly evaporate, avoid leakage into waterways.

6.3 Methods for materials for containment and cleaning up

In the event of a large spill, allow for adequate ventilation, and do not re-enter an area without an SCBA until adequate ventilation is accomplished. Evacuate downwind of the spills and dike to contain the spill until it evaporates.

6.4 Reference to other sections

See Sections 7, 8, 10, 11, 12, and 13.

SECTION 7: HANDLING AND SAFE STORAGE

7.1 Precaution for safe handling

(See section 8 for recommended personal protective equipment.) Avoid contact with the skin and eyes. Avoid unnecessarily inhaling material and ensure that good ventilation is present when handling. Wash after handling and follow good personal hygiene and good housekeeping practices. Keep containers closed and transfer material using closed systems. Handle in a manner to minimize spills.

7.2 Conditions for safe storage, including any incompatibilities

Store in well-ventilated place. Keep container tightly closed. Store locked up. Containers should be maintained in good condition. Do not allow material to remain in deteriorating containers. Because this product can volatilize, special care should be taken for over pressurization hazards if the containers are overheated or near a radiant heat source. Incompatible with alkali or alkaline earth metals, and powdered metals Al, Zn, Be, etc. Avoid contact with oxidizers.

7.3 Specific end use(s)

The purpose of this chemical agent is to be used as a fire suppressant found in vehicle systems. See Section 1.2. For safety precautions, refer to Sections 7.1 and 7.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Chemical Name	OSHA PEL	US EPA TSCA	DFG MAK *	EU BLV
2-bromo-3,3,3-trifluoro-1-propene	N/A	1 ppm	N/A	N/A

All values are 8-hour time weighted concentrations.

8.2 Exposure Controls

Engineering controls

Ventilate indoor work areas to minimize exposure levels. Inspect and clean ventilation systems regularly. Prolonged use should occur only in work areas with adequate ventilation. Keep storage containers tightly closed. Vapors are heavier than air, posing a potential hazard if large volumes are trapped in enclosed or low places.

Individual protection measures

Wear protective clothing when handling a leak in a fire extinguisher container. When handling bulk material and containers, the following are recommended:

Eye/Face Protection:	Eye protection with splash protective side shields.
Skin and Body Protection:	Neoprene, nitrile or PVA gloves, and protective shoes such as steel-toed shoes.
Respiratory Protection:	If handled in enclosed spaces where applicable exposure limits may be exceeded, a Self Contained Breathing Apparatus (SCBA) should be used. When performing filling or servicing operations: Perform these activities in a well-ventilated area.
Hygiene Measures:	Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to- mouth contact when handling. Wash thoroughly after handling.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State:	Volatile liquid
Color:	Colorless to slight yellow tint, transparent
Odor:	Soured fruit odor
Odor threshold:	Not available
pH-value:	Not applicable
Melting point:	-111.2°C (-168.2°F)
Freezing Point:	-131.2°C (-204.2°F)
Initial Boiling Point:	34°C (93.2°F)
Flash point:	None
Evaporation rate:	Not available
Flammability (liquid, gas):	Not applicable under standard ambient conditions
Explosion limits:	Not applicable under standard ambient conditions
Vapor pressure:	82.0 kPa at 25°C (11.9 psia @ 77°F)
Vapor density:	7.27 g/l at 20°C (0.45 lbs/ft^3 at 68°F)
Relative density (liquid):	1.65 g/cm^3 at 20°C (103 lbs/ft^3 at 68°F)
Solubility in water:	Low solubility, 1 g/l at 20°C (0.13 lbs/gallon(US) at 68°F)
Partition coefficient:	$Log_{10}P_{ow}$ = 2.7
Auto-ignition temperature:	None determined, tested to 400°C (752°F)
Decomposition temperature:	Approx. 600°C (1,112°F)
Molecular Weight:	174.95

9.2 Other information

Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

This compound will slowly react with oxygen and water contamination in storage containers. Stabilizing additives are added to this material to protect the material against minor amounts of air and moisture that may occur when transferring material into or between containers.

10.2 Chemical Stability

Normally stable when stored in a closed system free of moisture or other contamination.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and handling, hazardous reactions will not occur.

10.4 Conditions to avoid

Storage or handling near incompatibles. This material will decompose if exposed to a high radiant heat source, such as fire.

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

Thermal decomposition may produce hydrogen fluoride, hydrogen bromide, and carbonyl halide. These materials are dangerous and exposure to them should be limited to the extent possible.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Cardiotox No Observable Adverse Effect level (NOAEL), based on dog inhalation with epinephrine	0.5%vol
Cardiotox Lowest Observable Adverse Effect Level (LOAEL), based on dog inhalation with epinephrine	1.0%vol
AMES, Human Lymphocyte Chromosome Aberration, and Mouse Lymphoma In-Vitro Tests	Tests indicate no mutagenic response
Acute Inhalation Test, 5%vol. for 30 minutes (rat)	No deaths and all rats normal at necropsy
Skin Irritation	No dermal reaction or skin irritation was observed in laboratory rabbits
Eye Irritation	Did not produce eye irritation or reaction in laboratory rabbits
14-Day Inhalation Test, 6 hours/day, 5 days/week, with 4-week recovery period (rat)	No deaths at six doses between 5,000 and 20,000 ppm. Treatment-related effects were sluggish activity and labored breathing that returned to normal after exposure ended and lower body weights. Pathology showed irritant effects in the upper respiratory tract.
90-Day Inhalation Test, 6 hours/day, 5 days/week, with 4-week recovery period (rat)	No deaths at three doses between 200 and 3,000 ppm. Treatment-related effects were sluggish activity and labored breathing that returned to normal after exposure ended and lower body weights and food consumption. Pathology showed irritant effects in the upper respiratory tract. Changes in blood chemistry and hematology were noted that appeared to be reversible during the recovery phase. Some treated animals had pale teeth.
Reproductive Toxicity, inhalation test, 6 hours/day, 7 days/week, up to 8 weeks (rat)	In two reproductive screening tests, male and female rats were exposed daily for 2 weeks prior to pairing, during pairing, during gestation, and up to days 10 of lactation. Six doses were administered between 50 and 3,000 ppm. Offspring did not exhibit any gross malformations. Treatment-related effects of repeat exposure on reproductive performance and development were seen in male and female rats at concentrations at 175 ppm and above. There is not clear evidence of reproductive/development effects in the absence of other non-specific consequences and there is interspecies and mechanistic information that raises doubt about human relevancy.

Long term exposure has not been fully investigated.

11.2 Information on other hazards

None available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic Toxicity:

96 h LC50: Oncorhynchus mykiss (rainbow trout) 31.6 mg/l (nominal)

96 h ErI50: Psuedokirchneriella subcapitata (green algae) >800 mg/l (nominal)

96 h EbI50: Psuedokirchneriella subcapitata (green algae) >800 mg/l (nominal)

48 h EC50: Daphnia magna (Water flea) 83.0 mg/l (nominal)

NOTE: Nominal concentrations represent quantities added to the test samples. This material is volatile and rapidly partitions out of test samples.

12.2 Persistence and degradability

Not readily biodegradable in water. Reacts quickly with gas-phase OH radicals in the atmosphere and has a short atmospheric lifetime (7.0 days at latitudes 30°N to 60°N). Anticipated rapid partitioning to the atmospheric compartment followed by degradation.

12.3 Bioaccummulative potential

Bioaccumulation is unlikely.

12.4 Mobility in soil

This material is a volatile organic compound and should not be permitted to be mixed with ground or drinking water and should be handled, used, and disposed of responsibly in accordance with regulations in the Country, Province, State, County, and locality where it is used.

12.5 Results of PBT and vPvB assessment

This mixture has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Endocrine disrupting properties

This mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No other known effects at this time.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose in accordance with all federal, state, and local regulations for products of this type.

The manufacturer assumes no liability for the use of this product in a manner that causes environmental or other harm.

SECTION 14: TRANSPORT INFORMATION

Transport Classifications

GROUND (Road or Rail): DOT

MARITIME: IMDG

AIR: IATA

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations. This transportation information covers the Halotron® BrX (CAS 1514-82-5) fire extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire suppression systems.

14.1 UN number or ID number

1956

14.2 UN proper shipping name

COMPRESSED GAS

14.3 Transport hazard class(es)

2.2 Non-Flammable Gas (shipping via air)

14.4 Packing group N/A

14.5 Environmental hazards

The mixture is found to not be a marine pollutant.

14.6 Special precautions for user

If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventory Status: All ingredients are on the following inventories:

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	No
Europe	EINECS/ELINC	No
Australia	AICS	No
Japan	MITI	No
South Korea	KECL	No

REACH Title XVII Restrictions: No information available.

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
2-bromo-3,3,3-trifluoro-1-propene	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) - Toxic Chemicals	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
2-bromo-3,3,3-trifluoro-1-propene	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:

R Phrases:	37	Irritating to respiratory system.
S Phrases:	23	Do not breathe gas/fumes/vapor/spray.
	24/25	Avoid contacts with skin and eyes.
	36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	45	In case of accident or if you feel unwell seek medical advice immediately.

U.S. Federal Regulatory Information:

SARA 313:
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product is not subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories:

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
*Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/ Clean Air Act:
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990. (Destroys ozone in the upper atmosphere).

U.S. State Regulatory Information:
Chemicals in this product are covered under specific state regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None
California – Permissible Exposure Limits for Chemical Contaminants: None
Florida – Substance List: None
Illinois – Toxic Substance List: None
Kansas – Section 302/303 List: None
Massachusetts – Substance List: None
Minnesota – List of Hazardous Substances: None
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: None
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: None
Texas – Hazardous Substance List: None
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Other:
Mexico – Grade Listed

15.2 Chemical Safety Assessment

N/A

SECTION 16: OTHER INFORMATION

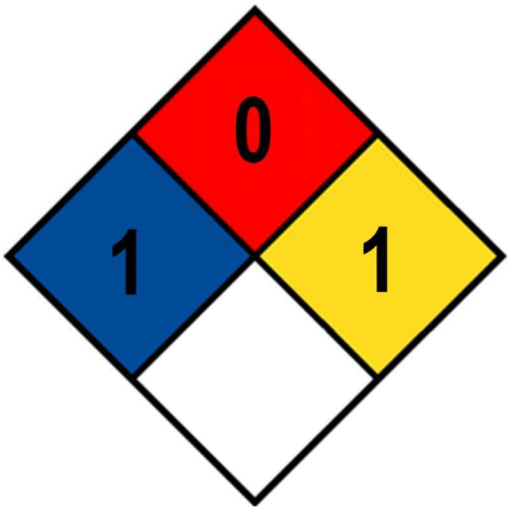
Hazardous Materials Identification System (HMIS) ratings (scale 0-4)

Health Hazard	**2***
Fire Hazard	**0**
Reactivity	**1**
PPE	**X**

X – Consult your supervisor or S.O.P. for SPECIAL handling directions

*Long-term repeated exposure to the material without proper handling procedures could cause a health problem.

National Fire Protection Association (NFPA) ratings (scale 0-4)



This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format. No modifications of this SDS are authorized by AMEREX Corporation. Questions or comments should be directed to AMEREX Corporation (See Section 1).

Issuing Date	21-June-2019
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Revision Notes	None

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