Safety Data Sheet

Halotron® BrX (2-BTP)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Halotron® BrX (2-BTP)

Product description : Not available.

Product type : Liquid.

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

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

Identified uses
Halotron BrX is used and marketed as a Fire Extinguishing Agent

See section 7.3 and where applicable the annex to this Safety Data Sheet for further information on the relevant uses.

1.3 Details of the supplier of the safety data sheet

American Pacific
10622 West 6400 North
Cedar City, UT 84721

Telephone: +1 (435) 865-5000
Fax: +1 (435) 865-5005

Only Representative
LabCorp Early Development Services GmbH
Kesselfeld 29,
48163 Munster, Germany
Tel: +49-251-327-49000
Contact: Steven Hunt

1.4 Emergency telephone number

Hours of operation : 24 hours a day, 7 days a week

CHEMTREC Customer Number : CCN721187

Telephone number : +1 703 741 5970 (International)
+1 800 424 9300 (US & Canada)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mono-constituent substance

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Repr. 1B, H360
STOT SE 3, H335
STOT SE 3, H336

See Section 11 for more detailed information on health effects and symptoms.
See Section 12 for environmental precautions.
See Section 16 for the full text of the H statements declared above.

2.2 Label elements



Signal word : Danger

Hazard statements : May cause respiratory irritation.
May cause drowsiness or dizziness.
May damage fertility or the unborn child.

Precautionary statements

Prevention : Obtain special instructions before use. Wear protective gloves, protective clothing and eye or face protection. Avoid breathing vapor.

Response : IF exposed or concerned: Get medical advice or attention.

Storage : Store in a well-ventilated place.

SECTION 2: Hazards identification

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
N/A	N/A	N/A	Yes	N/A	N/A	N/A

Other hazards which do not result in classification : None known.

Please note some GHS hazard classifications listed above may not be applicable in your country or region and are shown for informational purposes only.

SECTION 3: Composition/information on ingredients

3.1 Substances

: Mono-constituent substance

Ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
2-bromo-3,3,3-trifluoroprop-1-ene	EC: 627-872-0 CAS: 1514-82-5	≥99	Repr. 1B, H360 STOT SE 3, H335 STOT SE 3, H336		[1]

Note: This material will contain proprietary stabilizer additives when in use in fire extinguisher hardware

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Constituent

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 15 minutes.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt

SECTION 4: First aid measures

or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Gross overexposure may cause central nervous system effects such as dizziness,confusion, physical incoordination, drowsiness, anesthesia, or unconsciousness. 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.

Skin contact : No known significant effects or critical hazards.

Ingestion : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Not likely to occur during professional use

Ingestion : Not likely to occur during professional use

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media : The properties of this chemical make it an ideal extinguishing media itself

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst. 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.

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

Hazardous thermal decomposition products : Decomposition products may include the following materials:
halogenated compounds
Hydrogen halides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

SECTION 5: Firefighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. 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

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : 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. Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. 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.

7.3 Specific end use(s)

SECTION 7: Handling and storage

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived No Effect Level / Predicted No Effect Concentration

If DNEL's or PNEC's are shown, these are for the potential Risk Determining Substances for the product. The specific Risk Determining Substances for the product are listed in the exposure scenarios found in the annex to this Safety Data Sheet.

Derived No Effect Level

Product/ingredient name	Type / Effects	Value
2-bromo-3,3,3-trifluoroprop-1-ene	DNEL - Workers - Long term - Inhalation Systemic DNEL - Workers - Long term - Inhalation Systemic	11 ppm 81 mg/m³

Predicted No Effect Concentration

No PNECs available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Halotron® BrX is a clear and colorless, or clear with a light yellow tint, volatile liquid with a slight ether-like (unstabilized), or a soured fruit (when stabilized) odor. As with any chemical, dose and exposure are critically important variables to understand any potential treatment. Gross overexposure may cause central nervous system effects such as dizziness, confusion, physical incoordination, drowsiness, anesthesia, or unconsciousness. Sustained exposure 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.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

SECTION 8: Exposure controls/personal protection

Respiratory protection : Use appropriate respiratory protection if there is the potential to exceed the exposure limit(s). Seek professional advice prior to respirator selection and use. Select respirator based on suitability to provide adequate worker protection for given working conditions and level of airborne contaminant.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid. [Volatile]

Color : Colorless to light yellow.

Odor : Solvent, ether-like(unstabilized), or an soured fruit odor (when stabilized)

Odor threshold : Not available.

pH : Not applicable.

Melting point/freezing point : -131.2 to -111.2°C

Initial boiling point and boiling range : 34°C

Flash point : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not applicable (liquid).

Lower and upper explosion limit : Not applicable

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/ft3 at 68°F)

Relative vapor density : Not applicable

Relative density : 1.65 g/cm3 at 20°C (103 lbs/ft3 at 68°F)

Density : Not applicable

Molecular weight : 174.95

Solubility(ies) : Not available.

Solubility in water : 1 g/l

Partition coefficient: n-octanol/water : 2.7

Auto-ignition temperature : None determined, tested to 400° C (752°F)

Decomposition temperature : 600°C

Viscosity : 2.4 x 10 -7 m2/s at 25°C

Explosive properties : Not applicable

Oxidizing properties : Not applicable

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : Normally stable when stored in a closed system free of moisture or other contamination. This material will decompose if exposed to a high radiant heat source, such as fire. This compound will slowly react with oxygen and water contamination in storage containers. Stabilizing additives are added to this material prior to final installation inequipment in order to protect the material against minor amounts of air and moisture contamination that may occur when transferring material into or between containers.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : None known.

SECTION 10: Stability and reactivity

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 : hydrogen fluoride
Hydrogen bromide
carbonyl halides

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Test	Result	Dose	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 403 [Acute Inhalation Toxicity]	Rat - Inhalation - LC50 Vapor	83.9 mg/l [4 hours]	

Conclusion/Summary : Based on available data, the classification criteria are not met.

Irritation/Corrosion

Product/ingredient name	Test	Result	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 404 [Acute Dermal Irritation/ Corrosion] OECD 405 [Acute Eye Irritation/ Corrosion]	Rabbit - Skin - Not irritant Rabbit - Eyes - Not irritant	

Conclusion/Summary

Skin : Based on available data, the classification criteria are not met.

Eyes : Based on available data, the classification criteria are not met.

Respiratory : May cause respiratory irritation.

Sensitization

Conclusion/Summary

Skin : Based on available data, the classification criteria are not met.

Respiratory : Based on available data, the classification criteria are not met.

Mutagenicity

Product/ingredient name	Test	Result	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 471 [Bacterial Reverse Mutation Test] OECD 473 [In vitro Mammalian Chromosomal Aberration Test] OECD 476 [In vitro Mammalian Cell Gene Mutation Test]	In vitro - Bacteria Negative In vitro - Mammalian-Human Negative In vitro - Mammalian-Animal Negative	

Conclusion/Summary : Based on available data, the classification criteria are not met.

Carcinogenicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Reproductive toxicity

Product/ingredient name	Test	Species	Result	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 421 [Reproduction/ Developmental Toxicity Screening Test]	Rat - Inhalation	Maternal toxicity: Positive Fertility effects: Positive Developmental: Positive	Repeated or prolonged exposure to the substance can produce reproductive system damage.
	OECD 421 [Reproduction/ Developmental Toxicity Screening Test]	Rat - Inhalation	Maternal toxicity: Positive Fertility effects: Positive Developmental: Positive	

Conclusion/Summary : May damage fertility or the unborn child.

Specific target organ toxicity (single exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
2-bromo-3,3,3-trifluoroprop-1-ene -	Category 3 Category 3		Respiratory tract irritation Narcotic effects

Specific target organ toxicity (repeated exposure)

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on the likely routes of exposure : Routes of entry anticipated: Inhalation.
Routes of entry not anticipated: Oral, Dermal, Eyes.

Eye contact : No known significant effects or critical hazards.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Gross overexposure may cause central nervous system effects such as dizziness,confusion, physical incoordination, drowsiness, anesthesia, or unconsciousness. 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.

Skin contact : No known significant effects or critical hazards.

Ingestion : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Not likely to occur during professional use

Ingestion : Not likely to occur during professional use

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Test	Result	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 413 [Subchronic Inhalation Toxicity: 90-day Study]	Sub-chronic - Rat - Inhalation - NOAEL Vapor 1424.9 mg/m³ [6 hours per day] [13 weeks]	

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

SECTION 11: Toxicological information

Conclusion/Summary : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Result	Species	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 203 [Fish, Acute Toxicity Test]	Acute - LC50 4.3 mg/l [96 hours]	Fish - *Oncorhynchus mykiss*	
	OECD 202 [Daphnia sp. Acute Immobilization Test and Reproduction Test]	Acute - EC50 11.1 mg/l [48 hours]	Crustaceans - *Daphnia magna*	
	OECD 201 [Alga, Growth Inhibition Test]	Acute - EC50 >22.1 mg/l [72 hours]	Algae - *Raphidocelis subcapitata*	
	OECD 201 [Alga, Growth Inhibition Test]	Chronic - NOEC 22.1 mg/l [72 hours]	Algae - *Raphidocelis subcapitata*	

Conclusion/Summary : Toxic to aquatic life.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Remarks
2-bromo-3,3,3-trifluoroprop-1-ene	OECD 310 [Ready Biodegradability - CO_2 in Sealed Vessels (Headspace Test)]	<1.1% [21 days] - Not readily	

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
2-bromo-3,3,3-trifluoroprop-1-ene	2.7 2.7	- -	Low Low

12.4 Mobility in soil

Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
2-bromo-3,3,3-trifluoroprop-1-ene	No	No	No	No	No	No	No

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
2-bromo-3,3,3-trifluoroprop-1-ene	No	No	No	No	No	No	No

Conclusion/Summary : The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

Conclusion/Summary : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number or ID number	Not Regulated for Transport.	Not Regulated for Transport.	Not Regulated for Transport.
14.2 UN proper shipping name	-	-	-
14.3 Transport hazard class(es)	-	-	-
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

15.2 Chemical Safety Assessment

This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative
WOE = Weight of Evidence

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Repr. 1B, H360	Calculation method
STOT SE 3, H335	Calculation method
STOT SE 3, H336	Calculation method

Full text of abbreviated H statements :

H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H360	May damage fertility or the unborn child.

Full text of classifications [CLP/GHS] :

Repr. 1B	TOXIC TO REPRODUCTION - Category 1B
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

Notice to reader

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling and storage. Other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any Federal, Other National Governmental Entity, State, Provincial, or local laws.