Bromofluoromethane
Safety Data Sheet 1100B00
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 03/08/2017 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form: Substance
Substance name: Bromofluoromethane
CAS No: 373-52-4
Product code: 1100-B-00
Formula: CH2BrF
Synonyms: Fluoromethyl bromide
Other means of identification: MFCD00153077

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

Use of the substance/mixture: Laboratory chemicals
Manufacture of substances
Scientific research and development

1.3. Details of the supplier of the safety data sheet

SynQuest Laboratories, Inc.
P.O. Box 309
Alachua, FL 32615 - United States of America
T (386) 462-0788 - F (386) 462-7097
info@synquestlabs.com - www.synquestlabs.com

1.4. Emergency telephone number

Emergency number: (844) 523-4086 (3E Company - Account 10069)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Simple Asphy: H380 - May displace oxygen and cause rapid suffocation
Liquefied gas: H280 - Contains gas under pressure; may explode if heated
Acute Tox. 4 (Oral): H302 - Harmful if swallowed
Acute Tox. 3 (Inhalation): H331 - Toxic if inhaled
Skin Irrit.: H315 - Causes skin irritation
Eye Irrit. 2A: H319 - Causes serious eye irritation
Muta. 2: H341 - Suspected of causing genetic defects
STOT SE 3: H335 - May cause respiratory irritation
STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure
Aquatic Acute 1: H400 - Very toxic to aquatic life
Aquatic Chronic 1: H410 - Very toxic to aquatic life with long lasting effects
Ozone 1: H420 - Harms public health and the environment by destroying ozone in the upper atmosphere

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US):

[Images of hazard pictograms]

Signal word (GHS-US): Danger

Hazard statements (GHS-US):
H280 - Contains gas under pressure; may explode if heated
H302 - Harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H335 - May cause respiratory irritation
H341 - Suspected of causing genetic defects
H373 - May cause damage to organs through prolonged or repeated exposure
H380 - May displace oxygen and cause rapid suffocation
H410 - Very toxic to aquatic life with long lasting effects
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Precautionary statements (GHS-US):
- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P264 - Wash skin thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P271 - Use only outdoors or in a well-ventilated area
- P273 - Avoid release to the environment
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P301+P352 - If swallowed: Call a POISON CENTER or doctor/physician if you feel unwell
- P302+P352 - If on skin: Wash with plenty of soap and water
- P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
- P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P308+P313 - If exposed or concerned: Get medical advice/attention
- P311 - Call a POISON CENTER or doctor/physician
- P312 - Call a POISON CENTER or doctor/physician if you feel unwell
- P314 - Get medical advice/attention if you feel unwell
- P321 - Specific treatment (see supplemental first aid instructions on this label)
- P330 - Rinse mouth
- P332+P313 - If skin irritation occurs: Get medical advice/attention
- P337+P313 - If eye irritation persists: Get medical advice/attention
- P362+P364 - Take off contaminated clothing and wash it before reuse
- P391 - Collect spillage
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed
- P405 - Store locked up
- P410+P403 - Protect from sunlight. Store in a well-ventilated place
- P501 - Dispose of contents/container to an approved waste disposal plant
- P502 - Refer to manufacturer/supplier for information on recovery/recycling

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance
Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromofluoromethane</td>
<td>(CAS No) 373-52-4</td>
<td>&lt;= 100</td>
<td>Simple Asphy, H380</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Liquefied gas, H280</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Oral), H302</td>
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<td></td>
<td></td>
<td></td>
<td>Acute Tox. 3 (Inhalation), H331</td>
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<td>Skin Irrit. 2, H315</td>
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<td></td>
<td>Eye Irrit. 2A, H319</td>
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<td></td>
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<td></td>
<td>Muta. 2, H341</td>
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<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>STOT RE 2, H373</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 1, H400</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic 1, H410</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Ozone 1, H420</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Get immediate medical advice/attention.

First-aid measures after skin contact: Wash with plenty of soap and water. Get immediate medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get immediate medical advice/attention.
4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media


5.2. Special hazards arising from the substance or mixture


Explosion hazard: Risk of explosion if heated under confinement. Use water spray or fog for cooling exposed containers.

5.3. Advice for firefighters

Firefighting instructions: In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection during firefighting: Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. For further information refer to section 8: “Exposure controls/personal protection”.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Evacuate unnecessary personnel. Ensure adequate air ventilation. May cause suffocation by reducing oxygen available for breathing. Do not breathe gas, fumes, vapor or spray.

6.1.1. For non-emergency personnel

Emergency procedures: Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

Emergency procedures: Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment: Stop leak if safe to do so. Dike for recovery or absorb with appropriate material.

Methods for cleaning up: Take up large spills with pump or vacuum and finish with dry chemical absorbent. Use explosion-proof equipment. Take up small spills with dry chemical absorbent. Sweep or shovel spills into appropriate container for disposal. Ventilate area.

Other information: For disposal of solid materials or residues refer to section 13: “Disposal considerations”.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Pressurized container: Do not pierce or burn, even after use. Close valve after each use and when empty.

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe fumes, gas, mist, spray, vapors. Wear personal protective equipment. Avoid contact with skin and eyes.

Safe handling of the gas receptacle: Securely chain cylinders when in use and protect against physical damage.

Hygiene measures: Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Comply with applicable regulations.

Storage conditions: Protect from sunlight. Do not expose to temperatures exceeding 50 °C. Keep container closed when not in use.
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Incompatible materials: Refer to Section 10 on Incompatible Materials.
Storage area: Store in dry, cool, well-ventilated area.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls
Appropriate engineering controls: Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Systems under pressure should be regularly checked for leakage. Oxygen detectors should be used when asphyxiating gases may be released. Gas detectors should be used when toxic gases may be released.
Eye protection: Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection.
Skin and body protection: Wear suitable protective clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Color: No data available
Odor: No data available
Odor threshold: No data available
pH: No data available
Melting point: No data available
Freezing point: No data available
Boiling point: 17 - 18 °C
Flash point: No data available
Relative evaporation rate (butyl acetate=1): No data available
Flammability (solid, gas): No data available
Explosion limits: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Vapor pressure: No data available
Relative density: No data available
Relative vapor density at 20 °C: No data available
Specific gravity / density: 1.76 g/ml (@ 25 °C)
Molecular mass: 112.93 g/mol
Solubility: No data available
Log Pow: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available
10.2. Chemical stability
The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
Keep away from heat, sparks and flame.

10.5. Incompatible materials
Strong bases. Strong oxidizing agents.

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity:
- Oral: Harmful if swallowed. Inhalation: Toxic if inhaled.

<table>
<thead>
<tr>
<th>Compound</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromofluoromethane (373-52-4)</td>
<td></td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>500.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (gases)</td>
<td>700.000 ppmV/4h</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>3.000 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>0.500 mg/l/4h</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Suspected of causing genetic defects.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects

Other information:
- Class I - Group VIII ozone-depleting substance.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber.
Waste disposal recommendations: Dispose of contents/container in accordance with licensed collector’s sorting instructions.
Additional information: Recycle the material as far as possible.
## SECTION 14: Transport Information

**Department of Transportation (DOT)**

Transport document description: UN2810 Toxic, liquids, organic, n.o.s., 6.1, III

| UN-No.(DOT) | : UN2810 |
| UN-Proper Shipping Name (DOT) | : Toxic, liquids, organic, n.o.s. |
| Hazard labels (DOT) | : 6.1 - Poison |

| Packing group (DOT) | : III - Minor Danger |
| Dangerous for the environment | : Yes |
| Marine pollutant | : Yes |

| DOT Packaging Non Bulk (49 CFR 173.xxx) | : 203 |
| DOT Packaging Bulk (49 CFR 173.xxx) | : 241 |
| DOT Symbols | : G - Identifies PSN requiring a technical name |
| DOT Special Provisions (49 CFR 172.102) | : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31H21 and 31H22, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50°C (1.1 bar at 122°F), or 130 kPa at 55°C (1.3 bar at 131°F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T7 - 4 178.274(d)(2) Normal............. 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : 153 |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : 60 L |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : 220 L |
| DOT Vessel Stowage Location | : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel. |
| DOT Vessel Stowage Other | : 40 - Stow “clear of living quarters” |
| Other information | : No supplementary information available. |

**TDG**

No additional information available

**Transport by sea**

| UN-No. (IMDG) | : 2810 |
| Proper Shipping Name (IMDG) | : TOXIC LIQUID, ORGANIC, N.O.S. |
| Class (IMDG) | : 6.1 - Toxic substances |
| Packing group (IMDG) | : III - substances presenting low danger |

**Air transport**

| UN-No. (IATA) | : 2810 |
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Proper Shipping Name (IATA): Toxic liquid, organic, n.o.s.
Class (IATA): 6.1 - Toxic Substances
Packing group (IATA): III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

| Bromofluoromethane | CAS No 373-52-4 | 100% |

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA
No additional information available

EU-Regulations

Bromofluoromethane (373-52-4)
Listed on ELINCS (European List of Notified Chemical Substances)

National regulations
No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases:

| Acute Tox. 3 (Inhalation) | Acute toxicity (inhalation) Category 3 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Acute 1 | Hazardous to the aquatic environment - Acute Hazard Category 1 |
| Aquatic Chronic 1 | Hazardous to the aquatic environment - Chronic Hazard Category 1 |
| Eye Irrit. 2A | Serious eye damage/eye irritation Category 2A |
| Liquefied gas | Gases under pressure Liquefied gas |
| Muta. 2 | Germ cell mutagenicity Category 2 |
| Ozone 1 | Hazardous to the ozone layer Category 1 |
| Simple Asphy | Simple Asphyxiant |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H280 | Contains gas under pressure; may explode if heated |
| H302 | Harmful if swallowed |
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H331 | Toxic if inhaled |
| H335 | May cause respiratory irritation |
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<table>
<thead>
<tr>
<th>NFPA health hazard</th>
<th>3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFPA fire hazard</td>
<td>0 - Materials that will not burn.</td>
</tr>
<tr>
<td>NFPA reactivity</td>
<td>0 - Normally stable, even under fire exposure conditions, and are not reactive with water.</td>
</tr>
</tbody>
</table>

HMIS III Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability: 0 Minimal Hazard - Materials that will not burn
Physical: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

SDS US (GHS HazCom 2012)
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is offered solely for your consideration, investigation, and verification. It does not represent any guarantee of the properties of the product nor that the hazard precautions or procedures described are the only ones which exist. SynQuest shall not be held liable or any damage resulting from handling or from contact with the above product.