

1-BROMOPROPANE

BPR

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Propylbromide n-Propylbromide		Liquid	Colorless
		Sinks in water.	
<p>Avoid contact with liquid and vapor. Keep people away. Wear self-contained breathing apparatus and full protective clothing. Shut off all sources of ignition. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>			
Fire	<p>FLAMMABLE. Flashback may occur along vapor trail. Containers may explode under fire conditions. Emits toxic fumes under fire conditions. Forms explosive mixtures in air. Water may be ineffective against fire. Wear self-contained breathing apparatus and full protective clothing. Extinguish with CO₂, dry chemicals, or foam. Use water streams to cool exposed containers until well after the fire is out.</p>		
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to the eyes, nose, and throat. May be harmful if inhaled or absorbed through the skin. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to the skin and eyes. May be harmful if swallowed or absorbed through the skin. IF IN EYES: flush with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF SWALLOWED: do nothing except keep victim warm.</p>		
Water Pollution	<p>Effects of low concentrations on aquatic life are not known. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>		

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Collection Systems: Pump; Dredge
 Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
 2.2 Formula: C₃H₇Br
 2.3 IMO/UN Designation: 3.2 + 3.3/2344
 2.4 DOT ID No.: Not listed
 2.5 CAS Registry No.: 106-94-5
 2.6 NAERG Guide No.: Not listed.
 2.7 Standard Industrial Trade Classification: 51139

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Approved respirator, rubber gloves, chemical safety goggles, other protective clothing.
- 3.2 **Symptoms Following Exposure:** Irritating to the eyes, nose, throat, upper respiratory tract, and skin.
- 3.3 **Treatment of Exposure:** Call a physician. EYES: Flush with running water for at least 15 minutes. SKIN: Remove contaminated clothing and shoes, flush affected areas with water for at least 15 minutes. INHALATION: Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. INGESTION: Do nothing except keep victim warm.
- 3.4 **TLV-TWA:** Not listed.
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 2.95 g/kg (rat)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
- 3.11 **Liquid or Solid Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of skin.
- 3.12 **Odor Threshold:** Currently not available
- 3.13 **IDLH Value:** Not listed.
- 3.14 **OSHA PEL-TWA:** Not listed.
- 3.15 **OSHA PEL-STEL:** Not listed.
- 3.16 **OSHA PEL-Ceiling:** Not listed.
- 3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:** 78°F C.C.
- 4.2 **Flammable Limits in Air:** 4.6% LEL
- 4.3 **Fire Extinguishing Agents:** Foam, CO₂, dry chemical
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective against fire.
- 4.5 **Special Hazards of Combustion Products:** Toxic fumes of Hydrogen Bromide
- 4.6 **Behavior in Fire:** 914°F
- 4.7 **Auto Ignition Temperature:** Currently not available
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 21.4 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 7.0 (calc.)
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
- 5.2 **Reactivity with Common Materials:** No reaction
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** Currently not available
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** Currently not available
- 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: 0
 Damage to living resources: (2)
 Human Oral hazard: 0
 Human Contact hazard: -
 Reduction of amenities: -

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99%
- 7.2 **Storage Temperature:** Currently not available
- 7.3 **Inert Atmosphere:** None
- 7.4 **Venting:** None
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Not listed
- 8.2 **49 CFR Class:** Not pertinent
- 8.3 **49 CFR Package Group:** Not listed.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 2 |
| Flammability (Red)..... | 3 |
| Instability (Yellow)..... | 0 |
- 8.6 **EPA Reportable Quantity:** Not listed.
- 8.7 **EPA Pollution Category:** Not listed.
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 123.01
- 9.3 **Boiling Point at 1 atm:** 160°F = 70.9°C = 344°K
- 9.4 **Freezing Point:** -166°F = -110°C = 163°K
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 1.3537 at 20°C
- 9.8 **Liquid Surface Tension:** 25.9 dyne/cm = 0.026 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 4.34
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** Currently not available
- 9.13 **Heat of Combustion:** -7276 Btu/lb = -4042 cal/g = 169 x 10³ J/kg
- 9.14 **Heat of Decomposition:** Currently not available
- 9.15 **Heat of Solution:** Currently not available
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** 5.3 psia

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
68	84.510		C U R R E N T L Y N O T A V A I L A B L E	53	0.746	35 40 45 50 55 60 65 70 75 80 85 90 95 100	0.635 0.614 0.595 0.577 0.559 0.543 0.528 0.513 0.500 0.487 0.475 0.463 0.452 0.441

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
68	0.320	-60 -40 -20 0 20 40 60 80 100 120 140	0.016 0.031 0.060 0.116 0.225 0.435 0.843 1.632 3.161 6.122 11.857		C U R R E N T L Y N O T A V A I L A B L E	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.162 0.167 0.172 0.177 0.181 0.186 0.191 0.195 0.200 0.205 0.210 0.214 0.219 0.224 0.229 0.233 0.238 0.243 0.247 0.252 0.257 0.262 0.266 0.271 0.276