

# BENZYL BROMIDE

BBR

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Bromotoluene, alpha alpha-Bromotoluene omega-Bromotoluene	Liquid  Colorless to yellow  Sharp irritating odor	Sinks in water.
<p>Restrict access. Avoid contact with liquid and vapor. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>		
<b>Fire</b>	<p>Combustible. Irritating gases are produced when heated. Wear goggles and self-contained breathing apparatus. Extinguish with water, dry chemicals, foam, or carbon dioxide. Cool exposed containers with water.</p>	
<b>Exposure</b>	<p>Call for medical aid.</p> <p>LIQUID Irritating to skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.</p>	
<b>Water Pollution</b>	<p>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>	

<p><b>1. CORRECTIVE RESPONSE ACTIONS</b> Stop discharge Collection Systems: Pump Chemical and Physical Treatment: Neutralize Do not burn</p>	<p><b>2. CHEMICAL DESIGNATIONS</b> 2.1 <b>CG Compatibility Group:</b> Not listed. 2.2 <b>Formula:</b> C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>Br 2.3 <b>IMO/UN Designation:</b> 8/1737 2.4 <b>DOT ID No.:</b> 1737 2.5 <b>CAS Registry No.:</b> 100-39-0 2.6 <b>NAERG Guide No.:</b> 156 2.7 <b>Standard Industrial Trade Classification:</b> 51129</p>
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 <b>Personal Protective Equipment:</b> Self-contained breathing apparatus; goggles; rubber gloves; protective clothing.</p> <p>3.2 <b>Symptoms Following Exposure:</b> Inhalation causes irritation of nose and throat; severe exposure may cause pulmonary edema. Vapors cause severe eye irritation; liquid can burn eyes. Skin contact causes irritation. Ingestion causes irritation of mouth and stomach.</p> <p>3.3 <b>Treatment of Exposure:</b> INHALATION: remove to fresh air. EYES: irrigate with copious amounts of water for 15 min. SKIN: flush with water, wash with soap and water. INGESTION: do NOT induce vomiting; give large amounts of water.</p> <p>3.4 <b>TLV-TWA:</b> Not listed. 3.5 <b>TLV-STEL:</b> Not listed. 3.6 <b>TLV-Ceiling:</b> Not listed. 3.7 <b>Toxicity by Ingestion:</b> Currently not available 3.8 <b>Toxicity by Inhalation:</b> Currently not available. 3.9 <b>Chronic Toxicity:</b> Currently not available 3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Currently not available 3.11 <b>Liquid or Solid Characteristics:</b> Currently not available 3.12 <b>Odor Threshold:</b> Currently not available 3.13 <b>IDLH Value:</b> Not listed. 3.14 <b>OSHA PEL-TWA:</b> Not listed. 3.15 <b>OSHA PEL-STEL:</b> Not listed. 3.16 <b>OSHA PEL-Ceiling:</b> Not listed. 3.17 <b>EPA AEG1:</b> Not listed</p>	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** 188°F C.C.
- 4.2 **Flammable Limits in Air:** Not pertinent
- 4.3 **Fire Extinguishing Agents:** Water, dry chemical, foam, carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Irritating hydrogen bromide gas may be formed.
- 4.6 **Behavior in Fire:** Forms vapor that is a powerful tear gas.
- 4.7 **Auto Ignition Temperature:** Currently not available
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** 2.6 mm/min.
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 40.5 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 11.0 (calc.)
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

## 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Reacts slowly to generate hydrogen bromide (hydrobromic acid).
- 5.2 **Reactivity with Common Materials:** Incompatible with bases, oxidizers and alcohols. Decomposes rapidly in the presence of all common metals except nickel and lead, liberating heat and hydrogen bromide.
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Rinse with sodium bicarbonate or lime solution.
- 5.5 **Polymerization:** Polymerizes with evolution of heat and hydrogen bromide when in contact with all common metals except nickel and lead.
- 5.6 **Inhibitor of Polymerization:** None used.

## 6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**  
0.05 mg/l/marine fish/no irritant response/salt water  
0.1 mg/l/marine fish/violent irritant activity/salt water  
\*Time period not specified
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:**  
Bioaccumulation: 0  
Damage to living resources: -  
Human Oral hazard: 1  
Human Contact hazard: 1  
Reduction of amenities: X

## 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Pressure-vacuum
- 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:** Poison
- 8.2 **49 CFR Class:** 6.1
- 8.3 **49 CFR Package Group:** II
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 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:** 171.0
- 9.3 **Boiling Point at 1 atm:** 388°F = 198°C = 471°K
- 9.4 **Freezing Point:** 25.0°F = -3.9°C = 269.3°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 1.441 at 22°C (liquid)
- 9.8 **Liquid Surface Tension:** 32.3 dynes/cm = 0.0323 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** (est.) 35 dynes/cm = 0.035 N/m at 20°C
- 9.10 **Vapor (Gas) Specific Gravity:** 5.9
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** 120 Btu/lb = 66.4 cal/g = 2.78 X 10<sup>5</sup> J/kg
- 9.13 **Heat of Combustion:** (est.) -9,000 Btu/lb = -5,000 cal/g = -210 X 10<sup>3</sup> J/kg
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Not pertinent
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** 20.86 cal/g
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** Currently not available

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
34	91.070	51	0.441	51	1.048	51	0.954
36	91.000	52	0.441	52	1.048	52	0.945
38	90.929	53	0.442	53	1.048	53	0.937
40	90.860	54	0.442	54	1.048	54	0.928
42	90.790	55	0.443	55	1.048	55	0.920
44	90.719	56	0.443	56	1.048	56	0.912
46	90.650	57	0.444	57	1.048	57	0.904
48	90.580	58	0.444	58	1.048	58	0.896
50	90.509	59	0.445	59	1.048	59	0.888
52	90.440	60	0.446	60	1.048	60	0.880
54	90.370	61	0.446	61	1.048	61	0.872
56	90.299	62	0.447	62	1.048	62	0.865
58	90.230	63	0.447	63	1.048	63	0.857
60	90.169	64	0.448	64	1.048	64	0.850
62	90.099	65	0.448	65	1.048	65	0.842
64	90.030	66	0.449	66	1.048	66	0.835
66	89.959	67	0.449	67	1.048	67	0.828
68	89.889	68	0.450	68	1.048	68	0.821
70	89.820	69	0.451	69	1.048	69	0.814
72	89.750	70	0.451	70	1.048	70	0.807
74	89.679	71	0.452	71	1.048	71	0.800
76	89.610	72	0.452	72	1.048	72	0.794
		73	0.453	73	1.048	73	0.787
		74	0.453	74	1.048	74	0.780
		75	0.454	75	1.048	75	0.774
		76	0.454	76	1.048	76	0.768

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
	I	160	0.172	160	0.00442		N
	N	170	0.223	170	0.00565		O
	S	180	0.288	180	0.00716		T
	O	190	0.368	190	0.00902		
	L	200	0.467	200	0.01127		P
	U	210	0.588	210	0.01399		E
	B	220	0.736	220	0.01724		R
	L	230	0.915	230	0.02113		T
	E	240	1.130	240	0.02573		I
		250	1.388	250	0.03115		N
		260	1.695	260	0.03751		E
		270	2.058	270	0.04493		N
		280	2.487	280	0.05355		T
		290	2.989	290	0.06351		
		300	3.575	300	0.07497		
		310	4.257	310	0.08811		
		320	5.046	320	0.10310		
		330	5.955	330	0.12010		
		340	7.000	340	0.13940		
		350	8.195	350	0.16120		
		360	9.556	360	0.18570		
		370	11.100	370	0.21320		
		380	12.850	380	0.24390		
		390	14.830	390	0.27800		