

# BROMOBENZENE

BBZ

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Bromobenzol Monobromobenzene Phenyl bromide	Liquid  Sinks in water.	Colorless	Pleasant odor
<p>Keep people away. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>			
<b>Fire</b>	Combustible. Extinguish with water, dry chemicals, foam, or carbon dioxide. Cool exposed containers with water.		
<b>Exposure</b>	Call for medical aid.  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.		
<b>Water Pollution</b>	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

<b>1. CORRECTIVE RESPONSE ACTIONS</b> Stop discharge Collection Systems: Pump Do not burn	<b>2. CHEMICAL DESIGNATIONS</b> 2.1 CG Compatibility Group: Not listed. 2.2 Formula: C <sub>6</sub> H <sub>5</sub> Br 2.3 IMO/IUN Designation: Not listed 2.4 DOT ID No.: 2514 2.5 CAS Registry No.: 108-86-1 2.6 NAERG Guide No.: 129 2.7 Standard Industrial Trade Classification: 51129
<b>3. HEALTH HAZARDS</b> 3.1 Personal Protective Equipment: Goggles or face shield; rubber gloves and apron. 3.2 Symptoms Following Exposure: Contact with liquid causes irritation of eyes and mild irritation of skin. Ingestion causes mild irritation of mouth and stomach. 3.3 Treatment of Exposure: EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water. INGESTION: induce vomiting; consult a doctor. 3.4 TLV-TWA: Not listed. 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Currently not available 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Currently not available 3.10 Vapor (Gas) Irritant Characteristics: Currently not available 3.11 Liquid or Solid Characteristics: Currently not available 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	

<b>4. FIRE HAZARDS</b> 4.1 Flash Point: 124°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 and other gases may be produced in fire. 4.6 Behavior in Fire: Not pertinent 4.7 Auto Ignition Temperature: 1,049°F 4.8 Electrical Hazards: Currently not available 4.9 Burning Rate: 3.8 mm/min. 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: 33.3 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 9.0 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	<b>7. SHIPPING INFORMATION</b> 7.1 Grades of Purity: Commercial 7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: No requirement 7.4 Venting: Open (flame arrester) 7.5 IMO Pollution Category: Currently not available 7.6 Ship Type: Currently not available 7.7 Barge Hull Type: Currently not available								
<b>5. CHEMICAL REACTIVITY</b> 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	<b>8. HAZARD CLASSIFICATIONS</b> 8.1 49 CFR Category: Flammable liquid 8.2 49 CFR Class: 3 8.3 49 CFR Package Group: III 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification: <table border="0"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>2</td> </tr> <tr> <td>Flammability (Red).....</td> <td>2</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table> 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	Category	Classification	Health Hazard (Blue).....	2	Flammability (Red).....	2	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	2								
Flammability (Red).....	2								
Instability (Yellow).....	0								
<b>6. WATER POLLUTION</b> 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: Z Damage to living resources: (2) Human Oral hazard: 1 Human Contact hazard: I Reduction of amenities: X	<b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b> 9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: 157 9.3 Boiling Point at 1 atm: 313°F = 156°C = 429°K 9.4 Freezing Point: -23.1°F = -30.6°C = 242.6°K 9.5 Critical Temperature: 746.6°F = 397°C = 670.2°K 9.6 Critical Pressure: 655 psia = 44.6 atm = 4.52 MN/m <sup>2</sup> 9.7 Specific Gravity: 1.49 at 25°C (liquid) 9.8 Liquid Surface Tension: 36 dynes/cm = 0.036 N/m at 20°C 9.9 Liquid Water Interfacial Tension: (est.) 30 dynes/cm = 0.030 N/m at 20°C 9.10 Vapor (Gas) Specific Gravity: 5.4 9.11 Ratio of Specific Heats of Vapor (Gas): 1.0931 9.12 Latent Heat of Vaporization: 104 Btu/lb = 58 cal/g = 2.4 X 10 <sup>5</sup> J/kg 9.13 Heat of Combustion: -8,510 Btu/lb = -4,730 cal/g = -198 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: 16.17 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
40	94.490	40	0.231	0	0.827	50	1.347
50	94.009	50	0.233	10	0.819	60	1.242
60	93.520	60	0.235	20	0.811	70	1.148
70	93.040	70	0.236	30	0.804	80	1.064
80	92.549	80	0.238	40	0.796	90	0.990
90	92.070	90	0.240	50	0.788	100	0.923
100	91.580	100	0.241	60	0.781	110	0.862
110	91.089	110	0.243	70	0.773	120	0.807
120	90.610	120	0.245	80	0.766	130	0.758
130	90.120	130	0.246	90	0.758	140	0.713
140	89.639	140	0.248	100	0.750	150	0.672
150	89.150	150	0.250	110	0.743	160	0.635
160	88.669	160	0.251	120	0.735	170	0.601
170	88.179	170	0.253	130	0.727	180	0.569
180	87.700	180	0.255	140	0.720	190	0.540
190	87.209	190	0.256	150	0.712	200	0.514
200	86.730	200	0.258	160	0.705	210	0.489
210	86.240	210	0.260	170	0.697		

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
34	0.031	60	0.049	60	0.00137	0	0.133
36	0.031	70	0.068	70	0.00186	25	0.139
38	0.032	80	0.093	80	0.00251	50	0.144
40	0.033	90	0.126	90	0.00335	75	0.150
42	0.034	100	0.169	100	0.00442	100	0.156
44	0.034	110	0.225	110	0.00577	125	0.162
46	0.035	120	0.296	120	0.00746	150	0.167
48	0.036	130	0.386	130	0.00957	175	0.173
50	0.037	140	0.498	140	0.01216	200	0.179
52	0.037	150	0.639	150	0.01533	225	0.185
54	0.038	160	0.812	160	0.01917	250	0.191
56	0.039	170	1.025	170	0.02380	275	0.196
58	0.040	180	1.283	180	0.02934	300	0.202
60	0.040	190	1.596	190	0.03594	325	0.208
62	0.041	200	1.972	200	0.04373	350	0.214
64	0.042	210	2.422	210	0.05289	375	0.219
66	0.043	220	2.956	220	0.06360	400	0.225
68	0.043	230	3.586	230	0.07606	425	0.231
70	0.044	240	4.328	240	0.09047	450	0.237
72	0.045	250	5.195	250	0.10710	475	0.243
74	0.046	260	6.204	260	0.12610	500	0.248
76	0.046	270	7.373	270	0.14780	525	0.254
78	0.047	280	8.722	280	0.17250	550	0.260
80	0.048	290	10.270	290	0.20040	575	0.266
82	0.049	300	12.040	300	0.23190	600	0.271
84	0.049	310	14.060	310	0.26730		