

# ETHYLENE DIBROMIDE

EDB

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Bromofume 1,2-Dibromoethane sym-Dibromoethane Dow-fume 40 Ethylene bromide Glycol dibromide W-10 W-15 W-40	Liquid  Colorless  Sweet odor  Sinks in water. Poisonous vapor is produced. Freezing point is 50°F.
<p>Keep people away. Avoid inhalation. Avoid contact with liquid and vapor. Notify local health and pollution control agencies. Protect water intakes.</p>	
<b>Fire</b>	Not flammable. POISONOUS GASES ARE PRODUCED WHEN HEATED. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Cool exposed containers with water.
<b>Exposure</b>	CALL FOR MEDICAL AID.  VAPOR POISONOUS IF INHALED. Irritating to eyes, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.  LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Irritating to skin and eyes. 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>	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.

1. CORRECTIVE RESPONSE ACTIONS	2. CHEMICAL DESIGNATIONS
Stop discharge Collection Systems: Pump; Dredge Do not burn	2.1 CG Compatibility Group: 36; Halogenated hydrocarbon 2.2 Formula: BrCH <sub>2</sub> CH <sub>2</sub> Br 2.3 IMO/UN Designation: 6.1/1605 2.4 DOT ID No.: 1605 2.5 CAS Registry No.: 106-93-4 2.6 NAERG Guide No.: 154 2.7 Standard Industrial Trade Classification: 51138
<b>3. HEALTH HAZARDS</b>	
3.1 Personal Protective Equipment: Canister type mask or self-contained air mask; neoprene gloves; chemical safety goggles. 3.2 Symptoms Following Exposure: Local inflammation, blisters and ulcers on skin; irritation in lungs and organic injury to liver and kidneys; may be absorbed through skin. 3.3 Treatment of Exposure: Remove from exposure. Remove contaminated clothing. Wash skin with soap and water. Flush eyes with plenty of water. Consult physician. 3.4 TLV-TWA: Not listed. 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 3; LD <sub>50</sub> = 50 to 500 mg/kg 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 the skin. 3.12 Odor Threshold: Currently not available 3.13 IDLH Value: 100 ppm 3.14 OSHA PEL-TWA: 20 ppm 3.15 OSHA PEL-STEL: 50 ppm peak for 5 minutes per 8 hour shift 3.16 OSHA PEL-Ceiling: 30 ppm 3.17 EPA AEGL: Not listed	

<b>4. FIRE HAZARDS</b>	<b>7. SHIPPING INFORMATION</b>								
4.1 Flash Point: Not flammable 4.2 Flammable Limits in Air: Not flammable 4.3 Fire Extinguishing Agents: Not pertinent 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent 4.5 Special Hazards of Combustion Products: Decomposition gases are toxic and irritating. 4.6 Behavior in Fire: Decomposes into toxic irritating gases. Reacts with hot metals such as aluminum and magnesium. 4.7 Auto Ignition Temperature: Not flammable 4.8 Electrical Hazards: Not pertinent 4.9 Burning Rate: Not flammable 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: Not pertinent 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	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: B 7.6 Ship Type: 2 7.7 Barge Hull Type: 2								
<b>8. HAZARD CLASSIFICATIONS</b>									
8.1 49 CFR Category: Poison 8.2 49 CFR Class: 6.1 8.3 49 CFR Package Group: I 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>3</td> </tr> <tr> <td>Flammability (Red).....</td> <td>0</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table>		Category	Classification	Health Hazard (Blue).....	3	Flammability (Red).....	0	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	3								
Flammability (Red).....	0								
Instability (Yellow).....	0								
8.6 EPA Reportable Quantity: 1 pound 8.7 EPA Pollution Category: X 8.8 RCRA Waste Number: U067 8.9 EPA FWCNA List: Yes									
<b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b>									
9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: 187.86 9.3 Boiling Point at 1 atm: 268°F = 131°C = 404°K 9.4 Freezing Point: 49.6°F = 9.8°C = 283.0°K 9.5 Critical Temperature: Not pertinent 9.6 Critical Pressure: Not pertinent 9.7 Specific Gravity: 2.180 at 20°C (liquid) 9.8 Liquid Surface Tension: 38.75 dynes/cm = 0.03875 N/m at 20°C 9.9 Liquid Water Interfacial Tension: 36.54 dynes/cm = 0.03654 N/m at 20°C 9.10 Vapor (Gas) Specific Gravity: Not pertinent 9.11 Ratio of Specific Heats of Vapor (Gas): 1.109 9.12 Latent Heat of Vaporization: 82.1 Btu/lb = 45.6 cal/g = 1.91 X 10 <sup>5</sup> J/kg 9.13 Heat of Combustion: Not pertinent 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: 13.79 cal/g 9.18 Limiting Value: Currently not available 9.19 Reid Vapor Pressure: 0.4 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
55	135.900	60	0.173	50	0.776	60	1.818
60	135.900	70	0.173	55	0.771	70	1.676
65	135.900	80	0.174	60	0.767	80	1.549
70	135.799	90	0.174	65	0.763	90	1.436
75	135.799	100	0.175	70	0.758	100	1.335
80	135.699	110	0.175	75	0.754	110	1.244
85	135.699	120	0.176	80	0.750	120	1.162
90	135.699	130	0.176	85	0.745	130	1.088
95	135.599	140	0.177	90	0.741	140	1.021
100	135.599	150	0.178	95	0.737	150	0.960
105	135.599	160	0.178	100	0.732	160	0.905
110	135.500	170	0.179	105	0.728	170	0.854
115	135.500	180	0.179	110	0.724	180	0.808
120	135.500	190	0.180	115	0.719	190	0.765
		200	0.180	120	0.715	200	0.726
		210	0.181	125	0.711	210	0.690
				130	0.706		
				135	0.702		
				140	0.698		
				145	0.693		
				150	0.689		

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
77	0.270	60	0.155	60	0.00521	0	0.100
		70	0.209	70	0.00690	25	0.103
		80	0.279	80	0.00904	50	0.105
		90	0.368	90	0.01172	75	0.108
		100	0.481	100	0.01504	100	0.111
		110	0.623	110	0.01914	125	0.113
		120	0.799	120	0.02414	150	0.116
		130	1.018	130	0.03020	175	0.118
		140	1.285	140	0.03749	200	0.121
		150	1.609	150	0.04620	225	0.123
		160	2.002	160	0.05653	250	0.126
		170	2.473	170	0.06872	275	0.128
		180	3.034	180	0.08301	300	0.130
		190	3.700	190	0.09966	325	0.132
		200	4.484	200	0.11900	350	0.135
		210	5.404	210	0.14120	375	0.137
		220	6.476	220	0.16680	400	0.139
		230	7.722	230	0.19590	425	0.141
		240	9.160	240	0.22910	450	0.143
		250	10.810	250	0.26670	475	0.145
		260	12.710	260	0.30900	500	0.147
		270	14.870	270	0.35660	525	0.149
		280	17.320	280	0.40980	550	0.150
		290	20.100	290	0.46910	575	0.152
		300	23.220	300	0.53500	600	0.154