

DIETHYLENETRIAMINE

DET

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Bis-(2-Aminoethyl) amine 2,2'-Diaminodiethylamine		Liquid	Colorless to yellow	Ammonia odor
Floats and mixes with water.				
<p>Keep people away. Avoid contact with liquid. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	Combustible. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Extinguish with water, dry chemical, alcohol foam, or carbon dioxide. Cool exposed containers with water.			
Exposure	CALL FOR MEDICAL AID. LIQUID Will burn 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. DO NOT INDUCE VOMITING.			
Water Pollution	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.			

1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge	2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 7; Aliphatic amine 2.2 Formula: NH ₂ (CH ₂) ₂ NH(CH ₂) ₂ NH ₂ 2.3 IMO/UN Designation: Not listed 2.4 DOT ID No.: 2079 2.5 CAS Registry No.: 111-40-0 2.6 NAERG Guide No.: 154 2.7 Standard Industrial Trade Classification: 51452
3. HEALTH HAZARDS 3.1 Personal Protective Equipment: Amine respiratory cartridge mask; rubber gloves; splash- proof goggles. 3.2 Symptoms Following Exposure: Prolonged breathing of vapors may cause asthma. Liquid burns skin and eyes. A skin rash can form. 3.3 Treatment of Exposure: INHALATION: remove victim to fresh air. INGESTION: do NOT induce vomiting; give large quantities of water; give at least one ounce of vinegar in an equal amount of water; get medical attention. SKIN CONTACT: flush with plenty of water. EYE CONTACT: flush with plenty of water for at least 15 min. and get medical attention. 3.4 TLV-TWA: 1 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 2; LD ₅₀ = 0.5 to 5 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 moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary. 3.11 Liquid or Solid Characteristics: Causes smarting of the skin and first-degree burns on short exposure and may cause secondary burns on long exposure. 3.12 Odor Threshold: 10 ppm 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: 210°F O.C. 4.2 Flammable Limits in Air: (calc.) 1%-10% 4.3 Fire Extinguishing Agents: Water spray, alcohol foam, carbon dioxide, dry chemical 4.4 Fire Extinguishing Agents Not to Be Used: Water or foam may cause frothing. 4.5 Special Hazards of Combustion Products: Irritating vapors are generated when heated. 4.6 Behavior in Fire: Not pertinent 4.7 Auto Ignition Temperature: 676°F 4.8 Electrical Hazards: Not pertinent 4.9 Burning Rate: Currently not available 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: 48.8 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 13.5 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	7. SHIPPING INFORMATION 7.1 Grades of Purity: 98-99% 7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: No requirement 7.4 Venting: Open 7.5 IMO Pollution Category: D 7.6 Ship Type: 3 7.7 Barge Hull Type: 3								
5. CHEMICAL REACTIVITY 5.1 Reactivity with Water: No reaction 5.2 Reactivity with Common Materials: No hazardous reaction 5.3 Stability During Transport: Stable 5.4 Neutralizing Agents for Acids and Caustics: Flush with water 5.5 Polymerization: Not pertinent 5.6 Inhibitor of Polymerization: Not pertinent	8. HAZARD CLASSIFICATIONS 8.1 49 CFR Category: Corrosive material 8.2 49 CFR Class: 8 8.3 49 CFR Package Group: II 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>1</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).....	3	Flammability (Red).....	1	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	3								
Flammability (Red).....	1								
Instability (Yellow).....	0								
6. WATER POLLUTION 6.1 Aquatic Toxicity: 710 ppm/24 hr/brine shrimp/TL _m 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): Currently not available 6.4 Food Chain Concentration Potential: 23% of theoretical in 5 days/freshwater acclimated seed 6.5 GESAMP Hazard Profile: Bioaccumulation: 0 Damage to living resources: 1 Human Oral hazard: 1 Human Contact hazard: II Reduction of amenities: XX	9. PHYSICAL & CHEMICAL PROPERTIES 9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: 103.17 9.3 Boiling Point at 1 atm: 405°F = 207°C = 480°K 9.4 Freezing Point: -38°F = -39°C = 234°K 9.5 Critical Temperature: Not pertinent 9.6 Critical Pressure: Not pertinent 9.7 Specific Gravity: 0.954 at 20°C (liquid) 9.8 Liquid Surface Tension: Not pertinent 9.9 Liquid Water Interfacial Tension: Not pertinent 9.10 Vapor (Gas) Specific Gravity: Not pertinent 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent 9.12 Latent Heat of Vaporization: Not pertinent 9.13 Heat of Combustion: (est.) -13,300 Btu/lb = -7,390 cal/g = -309 X 10 ⁵ J/kg 9.14 Heat of Decomposition: Not pertinent 9.15 Heat of Solution: (est.) -13 Btu/lb = -7 cal/g = -0.3 X 10 ⁵ J/kg 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: 0.02 psia								

NOTES

DIETHYLENETRIAMINE

DET

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
52	60.110	85	0.673		N O T P E R T I N E N T		N O T P E R T I N E N T
54	60.040	90	0.676				
56	59.970	95	0.678				
58	59.900	100	0.681				
60	59.830	105	0.683				
62	59.760	110	0.685				
64	59.690	115	0.688				
66	59.620	120	0.690				
68	59.550	125	0.692				
70	59.480	130	0.695				
72	59.410	135	0.697				
74	59.340	140	0.699				
76	59.270	145	0.702				
78	59.200	150	0.704				
80	59.140						
82	59.070						
84	59.000						
86	58.930						

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
	M I S C I B L E	60	0.005	60	0.00010		N O T P E R T I N E N T
		80	0.011	80	0.00020		
		100	0.022	100	0.00038		
		120	0.041	120	0.00069		
		140	0.075	140	0.00120		
		160	0.131	160	0.00203		
		180	0.220	180	0.00331		
		200	0.360	200	0.00524		
		220	0.570	220	0.00806		
		240	0.881	240	0.01210		
		260	1.328	260	0.01773		
		280	1.958	280	0.02544		
		300	2.828	300	0.03578		
		320	4.009	320	0.04942		
		340	5.585	340	0.06713		
		360	7.656	360	0.08977		
	380	10.340	380	0.11830			