

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.			
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.			
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	2. CHEMICAL DESIGNATIONS
Dilute and disperse Stop discharge	2.1 CG Compatibility Group: 7; Aliphatic amine 2.2 Formula: $\text{NH}_2(\text{CH}_2)_2\text{NH}(\text{CH}_2)_2\text{NH}_2$ 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	7. SHIPPING INFORMATION
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	7.1 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
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:	Category Classification Health Hazard (Blue)..... 3 Flammability (Red)..... 1 Instability (Yellow)..... 0
8.6 EPA Reportable Quantities: Not listed. 8.7 EPA Pollution Category: Not listed. 8.8 RCRA Waste Number: Not listed 8.9 EPA FWCNA List: Not listed	8.6 EPA Reportable Quantities: Not listed. 8.7 EPA Pollution Category: Not listed. 8.8 RCRA Waste Number: Not listed 8.9 EPA FWCNA List: Not listed
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 ³ 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 ³ 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

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

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