

AMINOETHYLETHANOLAMINE

AEE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 2-[(2-Aminoethyl) amino] ethanol N-(2-Aminoethyl) ethanolamine N-Hydroxyethyl-1,2-ethanediamine N-Beta-Hydroxyethylethylenediamine	Liquid Colorless Mild ammonia odor Sinks and mixes with water.
Avoid contact with liquid. Keep people away. Wear rubber overclothing. Stop discharge if possible. Call fire department. Isolate and remove discharged material. Notify local health and pollution control agencies.	
Fire	Combustible. Extinguish with dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective on fire.
Exposure	CALL FOR MEDICAL AID. LIQUID Will burn 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. 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 pollution control officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** Currently not available; Alkanolamine
 2.2 **Formula:** HOCH₂CH₂NHCH₂CH₂NH₂
 2.3 **IMO/UN Designation:** Not listed
 2.4 **DOT ID No.:** 3055
 2.5 **CAS Registry No.:** 111-41-1
 2.6 **NAERG Guide No.:** 153
 2.7 **Standard Industrial Trade Classification:** 51461

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles or face shield, protective clothing
 3.2 **Symptoms Following Exposure:** Skin contact will cause mild irritation; eye contact will cause more severe irritation.
 3.3 **Treatment of Exposure:** INGESTION: do NOT induce vomiting; call physician immediately. SKIN: wash area with plenty of water. EYES: flush thoroughly with running water, preferably for 15 min.
 3.4 **TLV-TWA:** Not listed.
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** Not listed.
 3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ 0.5 to 5 g/kg
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 3.10 **Vapor (Gas) Irritant Characteristics:** High concentrations of vapor may cause a slight smarting of the eyes or respiratory system. The effect is temporary.
 3.11 **Liquid or Solid Characteristics:** Fairly severe skin irritant; may cause pain and second-degree burns after a few minutes contact.
 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

4. FIRE HAZARDS

- 4.1 **Flash Point:** 265°F O.C.
 4.2 **Flammable Limits in Air:** 1%-8% (calc.)
 4.3 **Fire Extinguishing Agents:** Alcohol foam, dry chemical or carbon dioxide.
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water or foam may cause frothing
 4.5 **Special Hazards of Combustion Products:** Not pertinent
 4.6 **Behavior in Fire:** Not pertinent
 4.7 **Auto Ignition Temperature:** 695°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:** Currently not available
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** Currently not available
 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 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:** Dilute with water
 5.5 **Polymerization:** Not pertinent
 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 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: 0
 Damage to living resources: 1
 Human Oral hazard: 0
 Human Contact hazard: II
 Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
 7.2 **Storage Temperature:** Elevated
 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:** III
 8.4 **Marine Pollutant:** No
 8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 2 |
| Flammability (Red)..... | 1 |
| Instability (Yellow)..... | 0 |
- 8.6 **EPA Reportable Quantity:** 1
 8.7 **EPA Pollution Category:** X
 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:** 104.15
 9.3 **Boiling Point at 1 atm:** 469°F = 243°C = 516°K
 9.4 **Freezing Point:** Currently not available
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 1.028 at 25°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):** (est.) 1.053
 9.12 **Latent Heat of Vaporization:** (est.) 209 Btu/lb = 116 cal/g = 4.85 X 10⁵ J/kg
 9.13 **Heat of Combustion:** (est.) -12,300 Btu/lb = -6860 cal/g = -287 X 10⁵ J/kg
 9.14 **Heat of Decomposition:** Not pertinent
 9.15 **Heat of Solution:** (est.) -4 Btu/lb = -2 cal/g = -0.1 X 10⁵ 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:** 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
60	64.169	28	0.645		C		C
61	64.169	30	0.645		U		U
62	64.169	32	0.645		R		R
63	64.169	34	0.645		R		R
64	64.169	36	0.645		E		E
65	64.169	38	0.645		N		N
66	64.169	40	0.645		T		T
67	64.169	42	0.645		L		L
68	64.169	44	0.645		Y		Y
69	64.169	46	0.645				
70	64.169	48	0.645		N		N
71	64.169	50	0.645		O		O
72	64.169	52	0.645		T		T
73	64.169	54	0.645				
74	64.169	56	0.645		A		A
75	64.169	58	0.645		V		V
76	64.169	60	0.645		A		A
77	64.169	62	0.645		I		I
78	64.169	64	0.645		L		L
79	64.169	66	0.645		A		A
80	64.169	68	0.645		B		B
81	64.169	70	0.645		L		L
82	64.169	72	0.645		A		A
83	64.169	74	0.645		B		B
84	64.169	76	0.645		L		L
85	64.169	78	0.645		E		E

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
	C	40	0.000	40	0.00000	0	0.351
	U	60	0.000	60	0.00000	10	0.356
	R	80	0.000	80	0.00001	20	0.360
	R	100	0.001	100	0.00001	30	0.365
	E	120	0.002	120	0.00003	40	0.369
	N	140	0.004	140	0.00007	50	0.374
	T	160	0.009	160	0.00014	60	0.378
	L	180	0.018	180	0.00028	70	0.383
	Y	200	0.035	200	0.00052	80	0.387
		220	0.065	220	0.00093	90	0.391
	N	240	0.116	240	0.00161	100	0.396
	O	260	0.201	260	0.00270	110	0.400
	T	280	0.336	280	0.00441	120	0.404
		300	0.547	300	0.00699	130	0.408
	A	320	0.870	320	0.01082	140	0.413
	V	340	1.350	340	0.01638	150	0.417
	A	360	2.052	360	0.02429	160	0.421
	I	380	3.057	380	0.03532	170	0.425
	L					180	0.429
	A					190	0.433
	B					200	0.437
	L					210	0.441
	E					220	0.445
						230	0.449
						240	0.453
						250	0.457