

N-ETHYL-N-BUTYLAMINE

EBA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms		Liquid	Water-white	Amine
Butylethylamine Ethylbutylamine		Floats and mixes with water;		
<p>Keep people away. Avoid contact with liquid and vapor. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE POISONOUS GASES MAY BE PRODUCED IN FIRE. Vapors may explode if ignited in an enclosed area. Flashback along vapor trail may occur. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Extinguish with water fog, carbon dioxide, dry chemical or foam. Cool exposed containers with water.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. Harmful if inhaled. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>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.</p>			
Water Pollution	<p>Effect of low concentration 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.</p>			

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
 Stop discharge
 Contain
 Collection Systems: Skim
 Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
 2.2 Formula: C₆H₁₃NH-C₄H₉
 2.3 IMO/IUN Designation: 3.2/2733
 2.4 DOT ID No.: 2733
 2.5 CAS Registry No.: Currently not available
 2.6 NAERG Guide No.: 132
 2.7 Standard Industrial Trade Classification: 51451

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Wear safety goggles, rubber gloves and apron, respiratory protective equipment, non sparking shoes.
- 3.2 **Symptoms Following Exposure:** INHALATION: Irritation of mucous membranes and lungs. EYES: Irritation. Corrosive, may cause blindness - Irreversible. SKIN: Irritation. Corrosive. INGESTION: Nausea and salivation.
- 3.3 **Treatment of Exposure:** Get medical aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. EYES: Flush with plenty of water for at least 15 minutes. SKIN: Flush with soap and water. INGESTION: Give large amount of water or milk. DO NOT induce vomiting.
- 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; LD₅₀ = 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:** Currently not available
 3.11 **Liquid or Solid Characteristics:** Severe skin irritant. Causes second and third degree burns on short contact and is very injurious to the eyes.
 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:** 65°F O.C. 56°F C.C.
 4.2 **Flammable Limits in Air:** Currently not available
 4.3 **Fire Extinguishing Agents:** Water spray or fog, CO₂, dry chemical or foam.
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective.
 4.5 **Special Hazards of Combustion Products:** May include nitrogen oxides.
 4.6 **Behavior in Fire:** When exposed to heat or flame, can react vigorously with oxidizing materials.
 4.7 **Auto Ignition Temperature:** Currently not available
 4.8 **Electrical Hazards:** Currently not available
 4.9 **Burning Rate:** Currently not available
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 51.2 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 14.5 (calc.)
 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:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99%.
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** Currently not available
 7.4 **Venting:** Currently not available
 7.5 **IMO Pollution Category:** (C)
 7.6 **Ship Type:** 3
 7.7 **Barge Hull Type:** 3

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Not listed
 8.2 **49 CFR Class:** Not pertinent
 8.3 **49 CFR Package Group:** Not listed.
 8.4 **Marine Pollutant:** No
 8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 3 |
| Flammability (Red)..... | 3 |
| Instability (Yellow)..... | 0 |
- 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

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
 9.2 **Molecular Weight:** 101.2
 9.3 **Boiling Point at 1 atm:** 227.3°F = 108.5°C = 381.7°K
 9.4 **Freezing Point:** Currently not available
 9.5 **Critical Temperature:** (Est.) 565.7°F = 296.5°C = 569.6°K
 9.6 **Critical Pressure:** (Est.) 440.9 psia = 30 atm = 3.04 MN/m²
 9.7 **Specific Gravity:** 0.7398 at 20°C
 9.8 **Liquid Surface Tension:** (Est.) 21 dynes/cm = 0.021 N/m at 20°C
 9.9 **Liquid Water Interfacial Tension:** (Est.) 54 dynes/cm = 0.054 N/m at 20°C
 9.10 **Vapor (Gas) Specific Gravity:** 3.5
 9.11 **Ratio of Specific Heats of Vapor (Gas):** (Est.) >1 at 20°C (68°F)
 9.12 **Latent Heat of Vaporization:** 153 Btu/lb = 85.0 cal/g = 3.56 X 10⁵ J/kg
 9.13 **Heat of Combustion:** -17431 Btu/lb = -9684 cal/g = -405 X 10⁶ 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:** 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
68	46.147		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L 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 U R R E N T L Y	5	0.052	5	0.00096		C U R R E N T L Y
		10	0.060	10	0.00111		
		15	0.071	15	0.00128		
		20	0.083	20	0.00147		
		25	0.097	25	0.00169		
		30	0.113	30	0.00195		
		35	0.132	35	0.00224		
		40	0.154	40	0.00258		
		45	0.180	45	0.00297		
		50	0.211	50	0.00342		
	N O T	55	0.246	55	0.00394		N O T
		60	0.288	60	0.00454		
		65	0.336	65	0.00523		
	A V A I L A B L E	70	0.393	70	0.00602		A V A I L A B L E
		75	0.459	75	0.00693		
		80	0.537	80	0.00798		
		85	0.627	85	0.00919		
		90	0.733	90	0.01058		
		95	0.857	95	0.01218		
		100	1.001	100	0.01403		
		105	1.170	105	0.01616		
		110	1.367	110	0.01860		
		115	1.598	115	0.02142		
		120	1.868	120	0.02466		
		125	2.183	125	0.02840		