

DIISOBUTYLAMINE

DBU

CAUTIONARY RESPONSE INFORMATION

Common Synonyms N,N-bis(2-Methylpropyl)amine 1-Propanamine, 2-methyl-N-(2-methyl propyl)-		Liquid	Colorless	Ammonia
Floats and slowly mixes with water.				
Keep people away. Avoid contact with liquid and vapor. Wear self-contained positive pressure breathing apparatus and full protective clothing. Shut off ignition sources. Call fire department. Stay upwind and use water spray to knock down vapor. Notify local health and pollution control agencies. Protect water intakes.				
Fire	COMBUSTIBLE. Containers may explode in fire. Vapor may explode if ignited in enclosed area. Flash back along vapor trail may occur. Wear self-contained positive pressure breathing apparatus and full protective clothing. Extinguish small fires: dry chemical, CO ₂ , water spray or fog; large fires: water spray, fog or foam. Cool exposed containers with water from the site until well after the fire is out.			
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose, throat. If in eyes, hold eyelids open and flush with running water for at least 15 min. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Irritating to skin and eyes. Harmful if swallowed. Remove and isolate contaminated clothing and shoes at the site. IF IN EYES OR ON SKIN, flush with running water for at least 15 min.; hold eyelids open if necessary. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.			
Water Pollution	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

Dilute and disperse
 Stop discharge
 Contain
 Collection Systems: Pump; Dredge

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** T; Aliphatic amines
 2.2 **Formula:** ((CH₃)₂CHCH₂)₂NH
 2.3 **IMO/UN Designation:** 3.3/2361
 2.4 **DOT ID No.:** 2361
 2.5 **CAS Registry No.:** 110-96-3
 2.6 **NAERG Guide No.:** 132
 2.7 **Standard Industrial Trade Classification:** 51451

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Wear self-contained positive pressure breathing apparatus and full protective clothing.
 3.2 **Symptoms Following Exposure:** Inhalation of high concentrations of vapor will cause irritation of the respiratory tract and the lungs. Contact with liquid may result in severe skin and eye irritation. Exposure to concentrated vapors may result in corneal edema. Poisonous if swallowed.
 3.3 **Treatment of Exposure:** INHALATION: Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Flush with running water for at least 15 min.; hold eyelids open if necessary. Remove and isolate contaminated clothing and shoes at the site. INGESTION: If victim is conscious, have victim drink water or milk and have victim induce vomiting. If victim is unconscious or having convulsions, do nothing except keep victim warm.
 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 = 258 mg/kg (rat)
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are moderately irritating such that personnel will not usually tolerate moderate or high concentrations.
 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:** 85°F. C.C.
 4.2 **Flammable Limits in Air:** Currently not available
 4.3 **Fire Extinguishing Agents:** Small fires: dry chemical, CO₂, water spray or fog; large fires: water spray, fog or foam.
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may not be effective.
 4.5 **Special Hazards of Combustion Products:** May contain toxic NOx fumes.
 4.6 **Behavior in Fire:** Can react vigorously with oxidizing materials. Produces toxic and irritating gases.
 4.7 **Auto Ignition Temperature:** 554°F.
 4.8 **Electrical Hazards:** Class 1; Group C
 4.9 **Burning Rate:** Currently not available
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 65.5 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 18.5 (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:** Incompatible with aluminum or aluminum alloys; copper or copper alloys; zinc, galvanized steel or alloys having more than 10% zinc by weight; mercury.
 5.3 **Stability During Transport:** Stable
 5.4 **Neutralizing Agents for Acids and Caustics:** Currently not available
 5.5 **Polymerization:** Not pertinent
 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** 20-40 ppm/24 hr critical range/creek chub, minnows
 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: 2
 Human Oral hazard: 2
 Human Contact hazard: II
 Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99%; 98%
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirements
 7.4 **Venting:** Pressure-vacuum
 7.5 **IMO Pollution Category:** (C)
 7.6 **Ship Type:** 2
 7.7 **Barge Hull Type:** 3

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable liquid
 8.2 **49 CFR Class:** 3
 8.3 **49 CFR Package Group:** III
 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:** 129.25
 9.3 **Boiling Point at 1 atm:** 283.1°F = 139.5°C = 412.7°K
 9.4 **Freezing Point:** -94°F = -70°C = 203.2°K
 9.5 **Critical Temperature:** 538 °F. = 281.3 °C. = 554.5 °K.
 9.6 **Critical Pressure:** 370 psia = 25.16 atm = 2.55 MN/m²
 9.7 **Specific Gravity:** 0.745 at 20° C.
 9.8 **Liquid Surface Tension:** 22.58 dynes/cm = 0.02258 N/m at 15.1°C
 9.9 **Liquid Water Interfacial Tension:** Currently not available
 9.10 **Vapor (Gas) Specific Gravity:** 4.46
 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
 9.12 **Latent Heat of Vaporization:** 140 Btu/lb = 77.8 cal/g = 3.26 X 10⁵ J/kg
 9.13 **Heat of Combustion:** Currently not available
 9.14 **Heat of Decomposition:** Not pertinent
 9.15 **Heat of Solution:** -73.31 +/- 1.49 Btu/lb = -40.73 +/- 0.83 cal/g = -1.71 +/- 0.03 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
68	46.500		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	77	0.738

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
68	0.500	25	0.011	25	0.00029		C U R R E N T L Y
		50	0.072	50	0.00168		N O T
		75	0.214	75	0.00465		A V A I L A B L E
		100	0.463	100	0.00959		
		125	0.845	125	0.01682		
		150	1.380	150	0.02661		
		175	2.090	175	0.03922		
		200	2.994	200	0.05486		
		225	4.111	225	0.07381		
		250	5.460	250	0.09621		
		275	7.057	275	0.12669		