

DIMETHYLETHANOLAMINE

DMB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Liquid	Colorless	Amine odor
Deanol 2-(Dimethylamino)ethanol B-Dimethylaminoethyl alcohol N,N-Dimethyl-n-(2-hydroxyethyl) amine	Floats and 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 and 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. POISONOUS GASES ARE PRODUCED IN FIRE. Wear self-contained positive pressure breathing apparatus and full protective clothing. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish small fires: dry chemical, CO ₂ , water spray or foam; large fires: water spray, fog or foam. Cool exposed containers with water.		
Exposure	CALL FOR MEDICAL AID. 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. LIQUID Will burn skin and eyes. Harmful if swallowed. IF IN EYES OR ON SKIN, flush with plenty of water for at least 15 minutes. Remove and isolate contaminated clothing and shoes at the site. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.		
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

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 8; Alkanolamines
- 2.2 Formula: (CH₃)₂NCH₂CH₂OH
- 2.3 IMO/UN Designation: 3.3/2051
- 2.4 DOT ID No.: 2051
- 2.5 CAS Registry No.: 108-01-0
- 2.6 NAERG Guide No.: 132
- 2.7 Standard Industrial Trade Classification: 51461

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 the vapor or mist can cause irritation to the upper respiratory tract. Asthmatic symptoms have been reported. Extremely irritating; may cause permanent eye injury. Corrosive; will cause severe skin damage with burns and blistering. Ingestion may cause damage to the mucous membranes and gastrointestinal tract.
- 3.3 **Treatment of Exposure:** INHALATION: Remove 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: Do NOT induce vomiting. Give large quantities of water or milk or one ounce of vinegar in an equal amount of water.
- 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 = 2.34 g/kg, (rat)
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Chronic exposure may cause asthma and grand mal epilepsy.
- 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: 0.015 ppm detection; 0.045 ppm recognition
- 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: 105°F O.C.
- 4.2 Flammable Limits in Air: 1.6% - 11.9%
- 4.3 Fire Extinguishing Agents: Small fires: dry chemical, CO₂, water spray or foam; large fires: water spray, fog or foam.
- 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
- 4.5 Special Hazards of Combustion Products: May contain toxic gases including ammonia (incomplete combustion) and NOx.
- 4.6 Behavior in Fire: Produces gaseous nitrogen compounds that are highly toxic and irritating.
- 4.7 Auto Ignition Temperature: 563°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: 29.8 (calc.)
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): 10.5 (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 copper, copper alloys, zinc, galvanized steel or zinc alloys having more than 10 percent zinc by weight.
- 5.3 Stability During Transport: Stable
- 5.4 Neutralizing Agents for Acids and Caustics: Sodium bisulfate
- 5.5 Polymerization: Not pertinent
- 5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

- 6.1 Aquatic Toxicity: 10-100 ppm/96 hr/finfish/TLm
- 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: 0
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: 99%
- 7.2 Storage Temperature: Ambient temperature
- 7.3 Inert Atmosphere: Currently not available
- 7.4 Venting: Pressure-vacuum
- 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).....	2
Flammability (Red).....	2
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: 89.14
- 9.3 Boiling Point at 1 atm: 274.3°F = 134.6°C = 407.8°K
- 9.4 Freezing Point: -73.5°F = -58.6°C = 214.6°K
- 9.5 Critical Temperature: 572°F = 300°C = 573°K (est.)
- 9.6 Critical Pressure: 600 psia = 40.8 atm = 4.13 MN/m²
- 9.7 Specific Gravity: 0.8870 at 20°C
- 9.8 Liquid Surface Tension: 27.1 dynes/cm = 0.0271 N/m at 24.5°C
- 9.9 Liquid Water Interfacial Tension: Not pertinent
- 9.10 Vapor (Gas) Specific Gravity: 3.2
- 9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
- 9.12 Latent Heat of Vaporization: 170.6 Btu/lb = 94.8 cal/g = 3.97 X 10⁵ J/Kg
- 9.13 Heat of Combustion: 15508 Btu/lb = 8616 cal/g = 360 X 10⁵ J/Kg
- 9.14 Heat of Decomposition: Not pertinent
- 9.15 Heat of Solution: Currently not available
- 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
	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		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
	M I S C I B L E	75 100 125 150 175 200 225 250	0.101 0.292 0.665 1.305 2.308 3.780 5.843 8.626	75 100 125 150 175 200 225 250	0.00174 0.00450 0.00941 0.01717 0.02857 0.04440 0.06550 0.09276		C U R R E N T L Y N O T A V A I L A B L E