

# TRIMETHYL HEXAMETHYLENE DIAMINE

THA

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> 1,6-Diamino-2,2,4(or 2,4,4)-trimethylhexane 1,6-Hexanediamine, 2,2,4(or2,4,4)-trimethyl-		Liquid                      Colorless                      Faint amine  Floats and mixes with water.
Keep people away. Avoid contact with liquid and vapor. Wear self-contained breathing apparatus (positive pressure if available) and full protective clothing. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.		
<b>Fire</b>	Combustible Fire may produce irritating or poisonous gases. Wear self-contained breathing apparatus (positive pressure if available) and full protective clothing. Extinguish small fires with dry chemicals, CO <sub>2</sub> , water spray or alcohol foam; large fires with water spray, fog or alcohol foam.	
<b>Exposure</b>	CALL FOR MEDICAL AID.  VAPOR Irritating to eyes, mucous membranes and skin. Overexposure causes coughing and nausea. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.  LIQUID Will burn eyes and skin. May be harmful if swallowed. Remove and isolate contaminated clothing and shoes. Flush affected areas with running water for at least 15 minutes. IF IN EYES hold eyelids open while flushing with water. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.	
<b>Water Pollution</b>	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.	

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge

### 2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 7; Aliphatic amine
- 2.2 **Formula:** C<sub>6</sub>H<sub>12</sub>N<sub>2</sub>
- 2.3 **IMO/UN Designation:** 8/2327
- 2.4 **DOT ID No.:** 2327
- 2.5 **CAS Registry No.:** 25513-64-8
- 2.6 **NAERG Guide No.:** 153
- 2.7 **Standard Industrial Trade Classification:** 51452

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Wear self-contained (positive pressure if available) breathing apparatus (with acid filter like that used for ammonia) and full protective clothing.
- 3.2 **Symptoms Following Exposure:** INHALATION: Irritating to mucous membranes. EYES and SKIN: Irritation. INGESTION: May be harmful if swallowed.
- 3.3 **Treatment of Exposure:** INHALATION: Remove victim to fresh air. Keep victim warm and quiet. If breathing has stopped, give artificial respiration. If breathing is difficult, administer oxygen. EYES or SKIN: Immediately flush with running water for at least 15 minutes. (Hold eyelids open if necessary.) Keep victim quiet and maintain normal body temperature. Remove and isolate contaminated clothing and shoes at site. INGESTION: If victim is unconscious or having convulsions, do nothing except maintain normal body temperature and seek medical aid.
- 3.4 **TLV-TWA:** Not listed.
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Currently not available
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Overexposure causes coughing and nausea.
- 3.11 **Liquid or Solid Characteristics:** Contact causes burns to skin and eyes. Visible necrosis of intact skin occurs within a period of 1 to 4 hours.
- 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:** 261°F O.C.
- 4.2 **Flammable Limits in Air:** Currently not available
- 4.3 **Fire Extinguishing Agents:** Small fires: Dry chemical, CO<sub>2</sub>, water spray or alcohol foam. Large fires: Water spray, fog or alcohol foam.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** May contain toxic and irritating gases including NO<sub>x</sub>.
- 4.6 **Behavior in Fire:** May generate toxic and irritating gases.
- 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:** 78.5 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 22.0 (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:** Not pertinent
- 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:** 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%
- 7.2 **Storage Temperature:** Currently not available
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 7.5 **IMO Pollution Category:** D
- 7.6 **Ship Type:** 3
- 7.7 **Barge Hull Type:** Currently not available

### 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:** Not listed
- 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:** Currently not available
- 9.2 **Molecular Weight:** 158.29 (calculated)
- 9.3 **Boiling Point at 1 atm:** 449.6°F = 232°C = 505.2°K
- 9.4 **Freezing Point:** Currently not available
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 0.867 at 20°C
- 9.8 **Liquid Surface Tension:** Currently not available
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 5.47
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** Currently not available
- 9.13 **Heat of Combustion:** Currently not available
- 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
68	54.100		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	0.001		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