

TOLUENEDIAMINE

TDA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 2,4-Diaminotoluene 2,4-Tolamine 2,4-Toluenediamine m-Toluene diamine meta-Toluenediamine 4-m-Tolylenediamine	Crystalline solid Colorless Floats and mixes with water.
<p>Keep people away. Shut off ignition sources. Call fire department. Avoid contact with solid and dust. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Combustible. Toxic gases are produced when heated to decomposition temperature. Wear goggles, protective overclothing (including hat, gloves, and rubber footwear), and dust-acid gas respirator. Extinguish with water, carbon dioxide, alcohol foam or dry chemical.
Exposure	CALL FOR MEDICAL AID. DUST Toxic by inhalation, skin absorption, and ingestion. Irritating to eyes and skin. If in eyes, hold eyelids open and flush with water for at least 15 minutes. If on skin, remove clothing and shower thoroughly with soap and water and put on clean clothing. SOLID Irritating to eyes and skin. Toxic if swallowed. If IN EYES, hold eyelids open and flush with plenty of water for at least 15 minutes. If on skin, remove clothing and shower thoroughly with soap and water. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
Water Pollution	Effect of low concentration on aquatic life is unknown. May be dangerous if enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge Collection Systems: Dredge	2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 9; Aromatic amine 2.2 Formula: $\text{C}_6\text{H}_4(\text{NH}_2)_2$ 2.3 IMO/UN Designation: Not listed 2.4 DOT ID No.: 1709 2.5 CAS Registry No.: Currently not available 2.6 NAERG Guide No.: 151 2.7 Standard Industrial Trade Classification: 51452
<h2>3. HEALTH HAZARDS</h2> <p>3.1 Personal Protective Equipment: Hat and goggles, respirator with combination dust-acid-gas-organic vapor cartridge, gauntlet vinyl gloves taped to jacket, and long sleeved underwear, vinyl apron and rubber footwear.</p> <p>3.2 Symptoms Following Exposure: Toxic by dust inhalation, skin absorption, and ingestion. It can cause conjunctivitis and corneal opacities, irritation and blistering of the skin, nausea, and vomiting.</p> <p>3.3 Treatment of Exposure: INHALATION: Move to fresh air. EYES: Hold eyelids open and flush with plenty of water for at least 15 minutes; get prompt medical attention. SKIN: Remove clothing, shower thoroughly with soap and water, put on clean clothing and get prompt medical attention.</p> <p>3.4 TLV-TWA: Not listed.</p> <p>3.5 TLV-STEL: Not listed.</p> <p>3.6 TLV-Ceiling: Not listed.</p> <p>3.7 Toxicity by Ingestion: Grade 3; $\text{LD}_{50} = 100 \text{ mg/kg}$</p> <p>3.8 Toxicity by Inhalation: Currently not available.</p> <p>3.9 Chronic Toxicity: Caused cancer in rats and female mice in feeding studies. It possesses mutagenic activities and it causes fatty degeneration of the liver. It was found to induce liver tumors in rats when fed at levels up to one percent in the diet. It causes jaundice and anemia. This compound is extremely dangerous.</p> <p>3.10 Vapor (Gas) Irritancy Characteristics: Not pertinent</p> <p>3.11 Liquid or Solid Characteristics: Irritates eyes and skin, and it can cause skin blistering in sensitive individuals.</p> <p>3.12 Odor Threshold: Currently not available</p> <p>3.13 IDLH Value: Not listed.</p> <p>3.14 OSHA PEL-TWA: Not listed.</p> <p>3.15 OSHA PEL-STEL: Not listed.</p> <p>3.16 OSHA PEL-Ceiling: Not listed.</p> <p>3.17 EPA AEGL: Not listed</p>	

4. FIRE HAZARDS 4.1 Flash Point: 410°F O.C. 4.2 Flammable Limits in Air: Currently not available 4.3 Fire Extinguishing Agents: Water, carbon dioxide, alcohol foam or dry chemicals. 4.4 Fire Extinguishing Agents Not to Be Used: Currently not available 4.5 Special Hazards of Combustion Products: Toxic fumes are generated when heated. 4.6 Behavior in Fire: Toxic gases are produced when heated to decomposition temperature. 4.7 Auto Ignition Temperature: Above 887°F 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: 54.7 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 14.0 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	7. SHIPPING INFORMATION 7.1 Grades of Purity: 98-99+ percent 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: C 7.6 Ship Type: 2 7.7 Barge Hull Type: Currently not available
<h2>8. HAZARD CLASSIFICATIONS</h2> <p>8.1 49 CFR Category: Keep Away From Food 8.2 49 CFR Class: 6.1 8.3 49 CFR Package Group: III 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification: Not listed 8.6 EPA Reportable Quantity: 10 pounds 8.7 EPA Pollution Category: A 8.8 RCRA Waste Number: U221 8.9 EPA FWPCA List: Not listed</p>	
9. PHYSICAL & CHEMICAL PROPERTIES 9.1 Physical State at 15°C and 1 atm: Solid 9.2 Molecular Weight: 122.17 9.3 Boiling Point at 1 atm: 536°F = 280°C = 553°K 9.4 Freezing Point: 210°F = 99°C = 372°K 9.5 Critical Temperature: Currently not available 9.6 Critical Pressure: Currently not available 9.7 Specific Gravity: 1.0 9.8 Liquid Surface Tension: Currently not available 9.9 Liquid Water Interfacial Tension: Currently not available 9.10 Vapor (Gas) Specific Gravity: Currently not available 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: Currently not available 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: Not pertinent	

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
S O L U 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