

TRIISOPROPANOLAMINE

TIP

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms	Solid	White	Slight ammonia
Tris(2-Hydroxypropyl) amine 2-Propanol,1,1,1"-nitrilotri- Tri-iso-propanolamine			
Avoid contact with solid and dust. Restrict access. Wear body-covering clothing, rubber gloves, apron, boots, full-face mask or amine vapor mask. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.			
Fire COMBUSTIBLE. TOXIC FUMES PRODUCED AT DECOMPOSITION TEMPERATURE. Wear body-covering clothing, rubber gloves, apron, boots, full-face mask or amine vapor mask. Extinguish with water fog, alcohol foam, carbon dioxide, or dry chemical. Water or alcohol foam may cause frothing. Cool exposed containers with water.			
Exposure CALL FOR MEDICAL AID. SOLID Irritating to eyes and skin. May cause slight corneal injury or burn. Low to moderately toxic by oral routes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and irrigate with plenty of water for 15 minutes. 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 it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.			

1. CORRECTIVE RESPONSE ACTIONS	2. CHEMICAL DESIGNATIONS
Stop discharge Contain Do not burn	2.1 CG Compatibility Group: 8; Alkanolamine 2.2 Formula: $(CH_2CHOHCH_2)_3N$ 2.3 IMO/UN Designation: Not listed 2.4 DOT ID No.: Not listed 2.5 CAS Registry No.: Currently not available 2.6 NAERG Guide No.: Not listed 2.7 Standard Industrial Trade Classification: 51461
3. HEALTH HAZARDS	
3.1 Personal Protective Equipment: Clean, body-covering clothing, rubber gloves, apron, boots, and face shield as dictated by circumstances. Approved, full-face mask or amine vapor mask only if required during a fire.	
3.2 Symptoms Following Exposure: Irritation of eyes and skin. May cause slight corneal injury or burn. Repeated contact may cause skin burn. Heated vapor may cause moderate respiratory irritation. Low to moderately toxic by oral routes.	
3.3 Treatment of Exposure: INHALATION: Move to fresh air if effects occur. Call physician and/or transport to medical facility. INGESTION: Induce vomiting immediately by giving two glasses of water and sticking finger down throat. Call a physician. No known antidote. Treat symptomatically. EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Refer to physician. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse; destroy contaminated shoes.	
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; LD ₅₀ = 1.08 to 3.6 g/kg (guinea pigs) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Currently not available. 3.10 Vapor (Gas) Irritant Characteristics: Vapor causes moderate irritation such that personnel will find high concentration unpleasant. 3.11 Liquid or Solid Characteristics: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of skin. Dust causes eye irritation. 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 A EGL: Not listed	

4. FIRE HAZARDS	7. SHIPPING INFORMATION								
4.1 Flash Point: 320°F O.C. 4.2 Flammable Limits in Air: 0.8% (Calc) - 5.1% (est.) 4.3 Fire Extinguishing Agents: Water fog, alcohol foam, CO ₂ , dry chemical. (Water or alcohol foam may cause frothing.) 4.4 Fire Extinguishing Agents Not to Be Used: Ordinary foam.	7.1 Grades of Purity: 99% 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: Currently not available 7.6 Ship Type: Currently not available 7.7 Barge Hull Type: 3								
4.5 Special Hazards of Combustion Products: Toxic fumes containing carbon monoxide, and/or carbon dioxide, and oxides of nitrogen.	8. HAZARD CLASSIFICATIONS								
4.6 Behavior in Fire: Toxic fumes containing carbon monoxide, and/or carbon dioxide, and oxides of nitrogen.	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: <table border="1" style="margin-left: 20px;"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>2</td> </tr> <tr> <td>Flammability (Red).....</td> <td>1</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table>	Category	Classification	Health Hazard (Blue).....	2	Flammability (Red).....	1	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	2								
Flammability (Red).....	1								
Instability (Yellow).....	0								
4.7 Auto Ignition Temperature: 608°F	8.6 EPA Reportable Quantity: Not listed. 8.7 EPA Pollution Category: Not listed. 8.8 RCRA Waste Number: Not listed 8.9 EPA FWCNA List: Not listed								
4.8 Electrical Hazards: Currently not available	9. PHYSICAL & CHEMICAL PROPERTIES								
4.9 Burning Rate: Currently not available	9.1 Physical State at 15°C and 1 atm: Solid 9.2 Molecular Weight: 191.27 9.3 Boiling Point at 1 atm: 572-581°F = 300-305°C = 573-578°K 9.4 Freezing Point: 136°F = 58°C = 331°K 9.5 Critical Temperature: Currently not available 9.6 Critical Pressure: Currently not available 9.7 Specific Gravity: 1.0200 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: 6.60 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								
4.10 Adiabatic Flame Temperature: Currently not available	NOTES								
4.11 Stoichiometric Air to Fuel Ratio: 67.8 (calc.)									
4.12 Flame Temperature: Currently not available									
4.13 Combustion Molar Ratio (Reactant to Product): 20.5 (calc.)									
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed									

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TIP

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
CURRENTLY NOT AVAILABLE			CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE	140	138.000

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
MISCIBLE			CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE