

# TERT-BUTYLAMINE

BUA

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms 2-Aminoisobutane 2-Amino-2-methylpropane 1,1-Dimethylethylamine TBA Trimethylaminomethane	Liquid	Colorless	Ammonia-like odor
Floats and mixes with water. Flammable, irritating vapor is produced.			
<p>Restrict access. Evacuate. Shut off ignition sources and call fire department. Avoid contact with liquid and vapor. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>			
Fire	<p>FLAMMABLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.</p>		
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR: Irritating to eyes, nose and throat. If inhaled, will cause difficult breathing. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID: Irritating to skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.</p>		
Water Pollution	<p>Effect of low concentrations 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.</p>		

1. CORRECTIVE RESPONSE ACTIONS	2. CHEMICAL DESIGNATIONS
Dilute and disperse Stop discharge	<p>2.1 CG Compatibility Group: 7; Aliphatic amine</p> <p>2.2 Formula: <math>(CH_3)_2CNH_2</math></p> <p>2.3 IMO/UN Designation: 3.2/1993</p> <p>2.4 DOT ID No.: Not listed</p> <p>2.5 CAS Registry No.: 75-64-9</p> <p>2.6 NAERG Guide No.: Not listed.</p> <p>2.7 Standard Industrial Trade Classification: 51489</p>
3. HEALTH HAZARDS	
<p>3.1 Personal Protective Equipment: Self-contained breathing apparatus; goggles or face shield; rubber gloves</p> <p>3.2 Symptoms Following Exposure: Inhalation causes irritation of nose, mouth, and lungs. Ingestion causes irritation of mouth and stomach. Contact with liquid causes severe irritation of eyes and moderate irritation of skin.</p> <p>3.3 Treatment of Exposure: INHALATION: move to fresh air; give artificial respiration if breathing has stopped. INGESTION: give large amounts of water and induce vomiting. EYES: immediately flush with water for at least 15 min.; get medical attention. SKIN: flush with water; wash with soap and water.</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; oral LD<sub>50</sub> = 180 mg/kg (rat)</p> <p>3.8 Toxicity by Inhalation: Currently not available.</p> <p>3.9 Chronic Toxicity: Currently not available</p> <p>3.10 Vapor (Gas) Irritant Characteristics: Currently not available</p> <p>3.11 Liquid or Solid Characteristics: Currently not available</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	7. SHIPPING INFORMATION								
<p>4.1 Flash Point: 16°F C.C.</p> <p>4.2 Flammable Limits in Air: 1.7%-8.9% (at 212°F)</p> <p>4.3 Fire Extinguishing Agents: Dry chemical, alcohol foam, carbon dioxide</p> <p>4.4 Fire Extinguishing Agents Not to Be Used: Water may be ineffective.</p> <p>4.5 Special Hazards of Combustion Products: Toxic oxides of nitrogen may form in fire.</p> <p>4.6 Behavior in Fire: Currently not available</p> <p>4.7 Auto Ignition Temperature: 716°F</p> <p>4.8 Electrical Hazards: Currently not available</p> <p>4.9 Burning Rate: 7mm/min.</p> <p>4.10 Adiabatic Flame Temperature: Currently not available</p> <p>4.11 Stoichiometric Air to Fuel Ratio: 36.9 (calc.)</p> <p>4.12 Flame Temperature: Currently not available</p> <p>4.13 Combustion Molar Ratio (Reactant to Product): 10.5 (calc.)</p> <p>4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed</p>	<p>7.1 Grades of Purity: 99+%</p> <p>7.2 Storage Temperature: Ambient</p> <p>7.3 Inert Atmosphere: No requirement</p> <p>7.4 Venting: Open</p> <p>7.5 IMO Pollution Category: C</p> <p>7.6 Ship Type: 2</p> <p>7.7 Barge Hull Type: 2</p>								
8. HAZARD CLASSIFICATIONS									
	<p>8.1 49 CFR Category: Not listed</p> <p>8.2 49 CFR Class: Not pertinent</p> <p>8.3 49 CFR Package Group: Not listed.</p> <p>8.4 Marine Pollutant: No</p> <p>8.5 NFPA Hazard Classification:</p> <table> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue)</td> <td>2</td> </tr> <tr> <td>Flammability (Red)</td> <td>4</td> </tr> <tr> <td>Instability (Yellow)</td> <td>0</td> </tr> </tbody> </table>	Category	Classification	Health Hazard (Blue)	2	Flammability (Red)	4	Instability (Yellow)	0
Category	Classification								
Health Hazard (Blue)	2								
Flammability (Red)	4								
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	<p>8.6 EPA Reportable Quantity: 1000 pounds</p> <p>8.7 EPA Pollution Category: C</p> <p>8.8 RCRA Waste Number: Not listed</p> <p>8.9 EPA FWCRA List: Yes</p>								
9. PHYSICAL & CHEMICAL PROPERTIES									
	<p>9.1 Physical State at 15°C and 1 atm: Liquid</p> <p>9.2 Molecular Weight: 73.14</p> <p>9.3 Boiling Point at 1 atm: 113°F = 45°C = 318°K</p> <p>9.4 Freezing Point: Not pertinent</p> <p>9.5 Critical Temperature: Currently not available</p> <p>9.6 Critical Pressure: Currently not available</p> <p>9.7 Specific Gravity: 0.696 at 20°C (liquid)</p> <p>9.8 Liquid Surface Tension: 19 dynes/cm = 0.019 N/m at 20°C</p> <p>9.9 Liquid Water Interfacial Tension: Not pertinent</p> <p>9.10 Vapor (Gas) Specific Gravity: 8.13</p> <p>9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available</p> <p>9.12 Latent Heat of Vaporization: 167.0 Btu/lb = 92.8 cal/g = 3.88 X 10<sup>5</sup> J/kg</p> <p>9.13 Heat of Combustion: -17,600 Btu/lb = -9,790 cal/g = -410 X 10<sup>5</sup> J/kg</p> <p>9.14 Heat of Decomposition: Currently not available</p> <p>9.15 Heat of Solution: -170 Btu/lb = -96 cal/g = -4.0 X 10<sup>5</sup> J/kg</p> <p>9.16 Heat of Polymerization: Not pertinent</p> <p>9.17 Heat of Fusion: Currently not available</p> <p>9.18 Limiting Value: Currently not available</p> <p>9.19 Reid Vapor Pressure: 11 psia</p>								

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
52	44.000						
54	43.930						
56	43.860						
58	43.790						
60	43.720						
62	43.650						
64	43.580						
66	43.520						
68	43.450						
70	43.380						
72	43.310						
74	43.240						
76	43.170						
78	43.100						
80	43.030						
82	42.960						
84	42.890						
86	42.820						

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	100	12.140	100	0.14770			
I	120	17.760	120	0.20880			
S	140	25.280	140	0.28720			
C	160	35.100	160	0.38600			
I	180	47.670	180	0.50780			
B	200	63.450	200	0.65530			
L	220	82.929	220	0.83140			
E	240	106.599	240	1.03800			
	260	135.099	260	1.27900			
	280	168.699	280	1.55400			
	300	208.199	300	1.86700			
	320	253.900	320	2.21900			
	340	306.399	340	2.61100			
	360	366.199	360	3.04400			
	380	433.699	380	3.51900			
	400	509.299	400	4.03700			