

# TERT-BUTYL ALCOHOL

BAT

CAUTIONARY RESPONSE INFORMATION				4. FIRE HAZARDS	7. SHIPPING INFORMATION
Common Synonyms 2-Methyl-2-propanol Trimethylcarbinol	Oily liquid	Colorless	Sharp alcohol odor	4.1 Flash Point: 61°F O.C. 52°F C.C. 4.2 Flammable Limits in Air: 2.35%-8.00% 4.3 Fire Extinguishing Agents: Dry chemical, carbon dioxide, or alcohol foam. 4.4 Fire Extinguishing Agents Not to Be Used: Water may be ineffective on fire 4.5 Special Hazards of Combustion Products: Not pertinent 4.6 Behavior in Fire: Not pertinent 4.7 Auto Ignition Temperature: 896°F 4.8 Electrical Hazards: Class I, Group D 4.9 Burning Rate: 3.4 mm/min. 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: 28.6 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 9.0 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	7.1 Grades of Purity: 99+%
Restrict access. Shut off ignition sources and call fire department. Avoid contact with liquid and vapor. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.	Flashes and mixes with water. Flammable, irritating vapor is produced. Freezing point is 78°F.			7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: No requirement 7.4 Venting: Open (flame arrester) or pressure-vacuum 7.5 IMO Pollution Category: D 7.6 Ship Type: Data not available 7.7 Barge Hull Type: Currently not available	8. HAZARD CLASSIFICATIONS
Fire	FLAMMABLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, carbon dioxide, or alcohol foam. Water may be ineffective on fire. Cool exposed containers with water.			8.1 49 CFR Category: Flammable liquid 8.2 49 CFR Class: 3 8.3 49 CFR Package Group: II 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification:	9. PHYSICAL & CHEMICAL PROPERTIES
Exposure	CALL FOR MEDICAL AID.  VAPOR Irritating to eyes, nose, throat. If inhaled, will cause dizziness, difficult breathing. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.  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.			9.1 Physical State at 15°C and 1 atm: Liquid 9.2 Molecular Weight: 74.12 9.3 Boiling Point at 1 atm: 181°F = 82.6°C = 355.8°K 9.4 Freezing Point: 78.3°F = 25.7°C = 298.9°K 9.5 Critical Temperature: 451.4°F = 233°C = 506.2°K 9.6 Critical Pressure: 576 psia = 39.2 atm = 3.97 MN/m² 9.7 Specific Gravity: 0.78 at 26°C (liquid) 9.8 Liquid Surface Tension: 20.7 dynes/cm = 0.0207 N/m at 25°C 9.9 Liquid Water Interfacial Tension: Not pertinent 9.10 Vapor (Gas) Specific Gravity: 2.6 9.11 Ratio of Specific Heats of Vapor (Gas): 1.080 9.12 Latent Heat of Vaporization: 234 Btu/lb = 130 cal/g = 5.44 X 10³ J/kg 9.13 Heat of Combustion: -14,000 Btu/lb = -7780 cal/g = -325.7 X 10³ J/kg 9.14 Heat of Decomposition: Not pertinent 9.15 Heat of Solution: Not pertinent 9.16 Heat of Polymerization: Not pertinent 9.17 Heat of Fusion: 21.88 cal/g 9.18 Limiting Value: Currently not available 9.19 Reid Vapor Pressure: 1.8 psia	1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge Chemical and Physical Treatment: Burn
Water Pollution	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.			6. WATER POLLUTION 6.1 Aquatic Toxicity: Currently not available 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): 0%, 5 days 6.4 Food Chain Concentration Potential: None 6.5 GESAMP Hazard Profile: Bioaccumulation: 0 Damage to living resources: 0 Human Oral hazard: 1 Human Contact hazard: 0 Reduction of amenities: 0	2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 20; Alcohols, glycols 2.2 Formula: (CH <sub>3</sub> ) <sub>2</sub> COH 2.3 IMO/UN Designation: 3.3/1122 2.4 DOT ID No.: 1120 2.5 CAS Registry No.: 75-65-0 2.6 NAER Guide No.: 129 2.7 Standard Industrial Trade Classification: 51213
3. HEALTH HAZARDS	3.1 Personal Protective Equipment: Air pack or organic canister mask, rubber gloves, and goggles 3.2 Symptoms Following Exposure: Vapor is narcotic in action and irritating to respiratory passages. Liquid is irritating to skin and eyes. 3.3 Treatment of Exposure: INHALATION: remove victim from exposure and restore breathing. SKIN, EYE CONTACT: remove liquid from skin with water. Flush eyes with water. 3.4 TLV-TWA: 100 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 2; LD <sub>50</sub> = 0.5 to 5.0 g/kg (rat) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Currently not available 3.10 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary. 3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin. 3.12 Odor Threshold: Currently not available 3.13 IDLH Value: 1,600 ppm 3.14 OSHA PEL-TWA: 100 ppm 3.15 OSHA PEL-STEL: Not listed. 3.16 OSHA PEL-Ceiling: Not listed. 3.17 EPA AEGL: Not listed			7. 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
80	48.560	80	0.725	82	0.746	80	3.774
82	48.500	85	0.733	84	0.745	85	3.353
84	48.430	90	0.742	86	0.744	90	2.985
86	48.370	95	0.750	88	0.743	95	2.664
88	48.300	100	0.758	90	0.742	100	2.382
90	48.230	105	0.767	92	0.741	105	2.134
92	48.170	110	0.775	94	0.740	110	1.915
94	48.100	115	0.783	96	0.739	115	1.722
96	48.040	120	0.792	98	0.738	120	1.552
98	47.970	125	0.800	100	0.737	125	1.401
100	47.910	130	0.808	102	0.736	130	1.266
102	47.840	135	0.817	104	0.735	135	1.147
104	47.780	140	0.825	106	0.734	140	1.040
106	47.710	145	0.833	108	0.733	145	0.945
108	47.650	150	0.842	110	0.732	150	0.860
110	47.580	155	0.850	112	0.731	155	0.784
112	47.520	160	0.858	114	0.730	160	0.716
114	47.450	165	0.867	116	0.729	165	0.654
116	47.390	170	0.875	118	0.728	170	0.599
118	47.320	175	0.883	120	0.727	175	0.549
120	47.260			122	0.726		
122	47.190			124	0.725		

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	80	0.908	80	0.01161	0	0.322	
I	85	1.072	85	0.01359	20	0.334	
S	90	1.262	90	0.01585	40	0.346	
C	95	1.481	95	0.01844	60	0.357	
I	100	1.734	100	0.02140	80	0.368	
B	105	2.024	105	0.02475	100	0.379	
L	110	2.357	110	0.02857	120	0.390	
E	115	2.736	115	0.03288	140	0.401	
	120	3.169	120	0.03775	160	0.411	
	125	3.661	125	0.04323	180	0.422	
	130	4.219	130	0.04940	200	0.432	
	135	4.850	135	0.05631	220	0.442	
	140	5.563	140	0.06405	240	0.452	
	145	6.366	145	0.07269	260	0.461	
	150	7.268	150	0.08232	280	0.471	
	155	8.281	155	0.09303	300	0.480	
					320	0.490	
					340	0.499	
					360	0.508	
					380	0.517	
					400	0.525	
					420	0.534	
					440	0.542	