

N-BUTYL ACETATE

BCN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms			
Acetic acid, n-butyl ester Butyl acetate Butyl ethanoate	Watery liquid	Colorless	Pleasant fruity odor
Floats on water. Flammable irritating vapor is produced.			
<p>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.</p>			
Fire	<p>FLAMMABLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, 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 nausea, dizziness, headache or 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, and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>		
Water Pollution	<p>Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.</p>		

<p>1. CORRECTIVE RESPONSE ACTIONS</p> <p>Dilute and disperse Stop discharge contain Collection Systems: Skim Clean shore line Salvage waterfowl</p>	<p>2. CHEMICAL DESIGNATIONS</p> <p>2.1 CG Compatibility Group: 34; Esters 2.2 Formula: CH₃COO(CH₂)₃CH₃ 2.3 IMO/UN Designation: 3.2/1123 2.4 DOT ID No.: 1123 2.5 CAS Registry No.: 123-86-4 2.6 NAERG Guide No.: 129 2.7 Standard Industrial Trade Classification: 51372</p>
<p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: All-purpose canister mask, chemical safety goggles, rubber gloves. 3.2 Symptoms Following Exposure: SKIN: prolonged or frequently repeated exposures may lead to drying. INHALATION: headaches, dizziness, nausea, irritation of respiratory passages and eyes. 3.3 Treatment of Exposure: EYES: in case of contact, flush with water for at least 15 min. INHALATION: remove from exposure immediately. Call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. INGESTION: induce vomiting and call a physician. 3.4 TLV-TWA: 150 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: 200 ppm. 3.7 Toxicity by Ingestion: Grade 2; LD₅₀ = 0.5 to 5 g/kg 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: None 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: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin. 3.12 Odor Threshold: 10 ppm 3.13 IDLH Value: 1,700 ppm 3.14 OSHA PEL-TWA: 150 ppm. 3.15 OSHA PEL-STEL: Not listed. 3.16 OSHA PEL-Ceiling: Not listed. 3.17 EPA AEGL: Not listed</p>	

<p>4. FIRE HAZARDS</p> <p>4.1 Flash Point: 81°F C.C. 4.2 Flammable Limits in Air: 1.7%-7.6% 4.3 Fire Extinguishing Agents: Foam, dry chemical, carbon dioxide 4.4 Fire Extinguishing Agents Not to Be Used: Water in straight hose stream will scatter and spread fire and should not be used. 4.5 Special Hazards of Combustion Products: Not pertinent 4.6 Behavior in Fire: Not pertinent 4.7 Auto Ignition Temperature: 760°F 4.8 Electrical Hazards: Class I, Group D 4.9 Burning Rate: 4.4 mm/min. 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: 38.1 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 12.0 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed</p>	<p>7. SHIPPING INFORMATION</p> <p>7.1 Grades of Purity: Urethane: 99.5%; pure: 98%; commercial: 90-92% 7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: No requirement 7.4 Venting: Open (flame arrester) 7.5 IMO Pollution Category: C 7.6 Ship Type: 3 7.7 Barge Hull Type: Currently not available</p>								
<p>5. CHEMICAL REACTIVITY</p> <p>5.1 Reactivity with Water: No reaction 5.2 Reactivity with Common Materials: No reaction 5.3 Stability During Transport: Stable 5.4 Neutralizing Agents for Acids and Caustics: Not pertinent 5.5 Polymerization: Not pertinent 5.6 Inhibitor of Polymerization: Not pertinent</p>	<p>8. HAZARD CLASSIFICATIONS</p> <p>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:</p> <table border="1"> <tr> <th>Category</th> <th>Classification</th> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>1</td> </tr> <tr> <td>Flammability (Red).....</td> <td>3</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table> <p>8.6 EPA Reportable Quantity: 5000 pounds 8.7 EPA Pollution Category: D 8.8 RCRA Waste Number: Not listed 8.9 EPA FWPCA List: Yes</p>	Category	Classification	Health Hazard (Blue).....	1	Flammability (Red).....	3	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	1								
Flammability (Red).....	3								
Instability (Yellow).....	0								
<p>6. WATER POLLUTION</p> <p>6.1 Aquatic Toxicity: 44 ppm/48 hr/daphnia/TL_m/fresh water 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): 0.15 to 0.5 lb/lb, 5 days (theor.) 52%, 5 days 6.4 Food Chain Concentration Potential: None 6.5 GESAMP Hazard Profile: Bioaccumulation: 0 Damage to living resources: 2 Human Oral hazard: 0 Human Contact hazard: I Reduction of amenities: X</p>	<p>9. PHYSICAL & CHEMICAL PROPERTIES</p> <p>9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: 116.16 9.3 Boiling Point at 1 atm: 259°F = 126°C = 399°K 9.4 Freezing Point: -100°F = -73.5°C = 199.7°K 9.5 Critical Temperature: 582.6°F = 305.9°C = 579.1°K 9.6 Critical Pressure: 455 psia = 31 atm = 3.1 MN/m² 9.7 Specific Gravity: 0.875 at 20°C (liquid) 9.8 Liquid Surface Tension: 14.5 dynes/cm = 0.0145 N/m at 25°C 9.9 Liquid Water Interfacial Tension: (est.) 57 dynes/cm = 0.057 N/m at 22°C 9.10 Vapor (Gas) Specific Gravity: 4.00 9.11 Ratio of Specific Heats of Vapor (Gas): 1.058 9.12 Latent Heat of Vaporization: 133 Btu/lb = 73.9 cal/g = 3.09 X 10⁵ J/kg 9.13 Heat of Combustion: -13,130 Btu/lb = -7294 cal/g = -305.4 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: Currently not available 9.18 Limiting Value: Currently not available 9.19 Reid Vapor Pressure: 0.5 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
35	55.760	35	0.449	30	0.979	55	0.784
40	55.590	40	0.450	40	0.971	60	0.761
45	55.420	45	0.452	50	0.963	65	0.740
50	55.240	50	0.453	60	0.955	70	0.719
55	55.070	55	0.455	70	0.947	75	0.700
60	54.900	60	0.456	80	0.940	80	0.681
65	54.720	65	0.458	90	0.932	85	0.663
70	54.550	70	0.460	100	0.924	90	0.646
75	54.380	75	0.461	110	0.916	95	0.630
80	54.200	80	0.463	120	0.908	100	0.614
85	54.030	85	0.464	130	0.900	105	0.599
90	53.860	90	0.466	140	0.892	110	0.584
95	53.680	95	0.467	150	0.884	115	0.571
100	53.510	100	0.469	160	0.876	120	0.557
105	53.340	105	0.470	170	0.868	125	0.545
110	53.160	110	0.472	180	0.861	130	0.532
115	52.990	115	0.473	190	0.853	135	0.521
120	52.820	120	0.475	200	0.845	140	0.509
		125	0.476				
		130	0.478				
		135	0.479				
		140	0.481				

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
68	1.000	35	0.065	35	0.00143	0	0.282
		40	0.078	40	0.00168	25	0.294
		45	0.092	45	0.00197	50	0.305
		50	0.109	50	0.00231	75	0.316
		55	0.128	55	0.00269	100	0.327
		60	0.150	60	0.00313	125	0.338
		65	0.176	65	0.00363	150	0.349
		70	0.205	70	0.00420	175	0.360
		75	0.239	75	0.00484	200	0.370
		80	0.277	80	0.00556	225	0.380
		85	0.321	85	0.00638	250	0.390
		90	0.370	90	0.00729	275	0.400
		95	0.426	95	0.00832	300	0.410
		100	0.489	100	0.00946	325	0.420
		105	0.561	105	0.01074	350	0.429
		110	0.640	110	0.01217	375	0.439
		115	0.730	115	0.01375	400	0.448
		120	0.830	120	0.01550	425	0.457
						450	0.466
						475	0.475
						500	0.483
						525	0.492
						550	0.500
						575	0.509
						600	0.517