

# SEC-BUTYL ACETATE

BTA

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Acetic acid, sec-butyl ester		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>				
<b>Fire</b>	<p><b>FLAMMABLE.</b>                  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>			
<b>Exposure</b>	<p>CALL FOR MEDICAL AID.</p> <p><b>VAPOR</b>                  Irritating to eyes, nose and throat.                  If inhaled, will cause nausea, headache or difficult breathing.                  Move to fresh air.                  If breathing has stopped, give artificial respiration.                  If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b>                  Irritating to skin and eyes.                  Remove contaminated clothing and shoes.                  Flush affected areas with plenty of water.                  IF IN EYES, hold eyelids open and flush with plenty of water.</p>			
<b>Water Pollution</b>	<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><b>1. CORRECTIVE RESPONSE ACTIONS</b></p> <p>Stop discharge                  Contain                  Collection Systems: Skim                  Clean shore line                  Salvage waterfowl</p>	<p><b>2. CHEMICAL DESIGNATIONS</b></p> <p>2.1 CG Compatibility Group: 34; Esters                  2.2 Formula: CH<sub>3</sub>COOCH(CH<sub>2</sub>)CH<sub>2</sub>CH<sub>3</sub>                  2.3 IMO/UN Designation: 3.2/1123                  2.4 DOT ID No.: 1123                  2.5 CAS Registry No.: 105-46-4                  2.6 NAERG Guide No.: 129                  2.7 Standard Industrial Trade Classification: 51372</p>
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 <b>Personal Protective Equipment:</b> Self contained breathing apparatus; chemical goggles or face splash shield.                  3.2 <b>Symptoms Following Exposure:</b> Headaches, dizziness, nausea, irritation of respiratory passage and eyes.                  3.3 <b>Treatment of Exposure:</b> INHALATION: if victim is overcome by vapors, remove from exposure immediately; call a physician; if breathing is irregular or stopped, start resuscitation and administer oxygen. EYES: flush with water for at least 15 min.                  3.4 <b>TLV-TWA:</b> 200 ppm                  3.5 <b>TLV-STEL:</b> Not listed.                  3.6 <b>TLV-Ceiling:</b> Not listed.                  3.7 <b>Toxicity by Ingestion:</b> Currently not available                  3.8 <b>Toxicity by Inhalation:</b> Currently not available.                  3.9 <b>Chronic Toxicity:</b> None                  3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.                  3.11 <b>Liquid or Solid Characteristics:</b> Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.                  3.12 <b>Odor Threshold:</b> Currently not available                  3.13 <b>IDLH Value:</b> 1,700 ppm.                  3.14 <b>OSHA PEL-TWA:</b> 200 ppm.                  3.15 <b>OSHA PEL-STEL:</b> Not listed.                  3.16 <b>OSHA PEL-Ceiling:</b> Not listed.                  3.17 <b>EPA AEGL:</b> Not listed</p>	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** 88°F O.C. 62°F C.C.  
 4.2 **Flammable Limits in Air:** 1.7% 9.8%  
 4.3 **Fire Extinguishing Agents:** Foam, carbon dioxide, or dry chemical  
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective  
 4.5 **Special Hazards of Combustion Products:** Not pertinent  
 4.6 **Behavior in Fire:** Not pertinent  
 4.7 **Auto Ignition Temperature:** Currently not available  
 4.8 **Electrical Hazards:** Not pertinent  
 4.9 **Burning Rate:** 4.4 mm/min. (approx.)  
 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

## 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction  
 5.2 **Reactivity with Common Materials:** Dissolves rubber and plastics.  
 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

## 6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** Currently not available  
 6.2 **Waterfowl Toxicity:** Currently not available  
 6.3 **Biological Oxygen Demand (BOD):** 0.15 to 0.5 lb/lb, 5 days  
 6.4 **Food Chain Concentration Potential:** None  
 6.5 **GESAMP Hazard Profile:**  
 Bioaccumulation: 0  
 Damage to living resources: 1  
 Human Oral hazard: 0  
 Human Contact hazard: 1  
 Reduction of amenities: X

## 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical and Pure  
 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:** C  
 7.6 **Ship Type:** 3  
 7.7 **Barge Hull Type:** Currently not available

## 8. HAZARD CLASSIFICATIONS

- 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:**
- | Category                  | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 1              |
| Flammability (Red).....   | 3              |
| Instability (Yellow)..... | 0              |
- 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

## 9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid  
 9.2 **Molecular Weight:** 116.16  
 9.3 **Boiling Point at 1 atm:** 234°F = 112°C = 385°K  
 9.4 **Freezing Point:** -100°F = -73.5°C = 199.7°K  
 9.5 **Critical Temperature:** 550.4°F = 288°C = 561.2°K  
 9.6 **Critical Pressure:** 469 psia = 32 atm = 3.2 MN/m<sup>2</sup>  
 9.7 **Specific Gravity:** 0.872 at 20°C (liquid)  
 9.8 **Liquid Surface Tension:** 23.3 dynes/cm = 0.0233 N/m at 21°C  
 9.9 **Liquid Water Interfacial Tension:** (est.) 58 dynes/cm = 0.058 Nm at 17°C  
 9.10 **Vapor (Gas) Specific Gravity:** 4.0  
 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.061  
 9.12 **Latent Heat of Vaporization:** (est.) 130 Btu/lb = 74 cal/g = 3.1 X 10<sup>5</sup> J/kg  
 9.13 **Heat of Combustion:** (est.) -13,100 Btu/lb = -7300 cal/g = -305 X 10<sup>3</sup> 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:** 1.0 psia

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
60	54.710	28	0.478	45	1.067	45	0.836
65	54.540	30	0.478	50	1.063	50	0.811
70	54.370	32	0.478	55	1.059	55	0.787
75	54.200	34	0.478	60	1.056	60	0.764
80	54.030	36	0.478	65	1.052	65	0.743
85	53.850	38	0.478	70	1.048	70	0.722
90	53.670	40	0.478	75	1.044	75	0.702
95	53.490	42	0.478	80	1.040	80	0.684
100	53.310	44	0.478	85	1.036	85	0.666
105	53.120	46	0.478	90	1.032	90	0.648
110	52.940	48	0.478	95	1.029	95	0.632
115	52.750	50	0.478	100	1.025	100	0.616
120	52.560	52	0.478	105	1.021	105	0.601
125	52.370	54	0.478	110	1.017	110	0.587
130	52.170	56	0.478	115	1.013	115	0.573
135	51.970	58	0.478	120	1.009		
140	51.780	60	0.478	125	1.005		
145	51.580	62	0.478	130	1.002		
150	51.370	64	0.478	135	0.998		
155	51.170	66	0.478	140	0.994		
160	50.960	68	0.478	145	0.990		
165	50.750	70	0.478	150	0.986		
170	50.540	72	0.478	155	0.982		
175	50.330	74	0.478	160	0.978		
180	50.110	76	0.478	165	0.975		
185	49.900	78	0.478	170	0.971		

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
	I	40	0.154	40	0.00334	0	0.266
	N	50	0.217	50	0.00461	25	0.278
	S	60	0.301	60	0.00626	50	0.289
	O	70	0.410	70	0.00838	75	0.301
	L	80	0.551	80	0.01105	100	0.312
	U	90	0.731	90	0.01439	125	0.324
	B	100	0.958	100	0.01852	150	0.335
	L	110	1.240	110	0.02356	175	0.346
	E	120	1.589	120	0.02967	200	0.356
		130	2.015	130	0.03698	225	0.367
		140	2.531	140	0.04567	250	0.377
		150	3.151	150	0.05592	275	0.387
		160	3.889	160	0.06791	300	0.397
		170	4.762	170	0.08183	325	0.407
		180	5.787	180	0.09789	350	0.417
		190	6.982	190	0.11630	375	0.426
		200	8.368	200	0.13730	400	0.435
		210	9.965	210	0.16100	425	0.445
						450	0.453
						475	0.462
						500	0.471
						525	0.479
						550	0.487
						575	0.496
						600	0.504