

# SEC-BUTYLAMINE

BTL

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b>	Liquid	White	Ammonia-like odor
	Mixes with water.		
	<p>Restrict access. Evacuate. Shut off ignition sources. Call fire department. Avoid contact with liquid and vapor. Wear rubber overclothing (including gloves). Stay upwind. Use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>		
<b>Fire</b>	<p>FLAMMABLE. POISONOUS GASES MAY BE PRODUCED IN FIRE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Extinguish with dry chemicals, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.</p>		
<b>Exposure</b>	<p>CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Will burn skin and eyes. If swallowed will cause nausea and vomiting 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>		
<b>Water Pollution</b>	<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

Dilute and disperse  
Stop discharge

### 2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 7; Aliphatic amine
- 2.2 Formula:  $CH_3CH_2CH(CH_3)NH_2$
- 2.3 IMO/UN Designation: Not listed
- 2.4 DOT ID No.: Not listed
- 2.5 CAS Registry No.: 513-49-5
- 2.6 NAERG Guide No.: Not listed
- 2.7 Standard Industrial Trade Classification: 51489

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical safety goggles; rubber gloves and apron; respiratory protective equipment; non-sparking shoes
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation or burns of the respiratory system; exposure to concentrated vapors can cause asphyxiation. Ingestion causes burns of mouth and stomach. Contact with eyes causes lachrymation, conjunctivitis, burns, corneal edema. Contact with skin causes irritation or burns, dermatitis.
- 3.3 **Treatment of Exposure:** INHALATION: remove patient from exposure; keep him quiet; contact physician. INGESTION: give large amount of water; induce vomiting; consult a physician. EYES: flush thoroughly with water for 15 min.; call physician immediately. SKIN: remove all contaminated clothing; flood affected area with large quantities of water; consult a physician.
- 3.4 TLV-TWA: Not listed.
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 3; oral  $LD_{50} = 380$  mg/kg (rat)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are moderately irritating such that personnel will not usually tolerate moderate or high concentrations.
- 3.11 **Liquid or Solid Characteristics:** Severe skin irritant. Causes second-and-third-degree burns on short contact and is very injurious to the eyes.
- 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 AEGL: Not listed

### 4. FIRE HAZARDS

- 4.1 Flash Point: 16°F C.C.
- 4.2 Flammable Limits in Air: Currently not available
- 4.3 Fire Extinguishing Agents: "Alcohol" foam, dry chemical, carbon dioxide
- 4.4 Fire Extinguishing Agents Not to Be Used: Water may be ineffective.
- 4.5 Special Hazards of Combustion Products: Toxic oxides of nitrogen may be formed in fire.
- 4.6 Behavior in Fire: Vapor is heavier than air and may travel to a source of ignition and flash back. Containers may explode in fire.
- 4.7 Auto Ignition Temperature: 712°F
- 4.8 Electrical Hazards: Currently not available
- 4.9 Burning Rate: 6.18 mm/min.
- 4.10 Adiabatic Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: 36.9 (calc.)
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): 10.5 (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: May corrode some metals in presence of water.
- 5.3 Stability During Transport: Stable
- 5.4 Neutralizing Agents for Acids and Caustics: Flush with water
- 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): Currently not available
- 6.4 Food Chain Concentration Potential: None
- 6.5 GESAMP Hazard Profile: Bioaccumulation: 0  
Damage to living resources: 2  
Human Oral hazard: 2  
Human Contact hazard: II  
Reduction of amenities: XXX

### 7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Pure
- 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: 2
- 7.7 Barge Hull Type: 2

### 8. HAZARD CLASSIFICATIONS

- 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:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	3
Instability (Yellow).....	-
- 8.6 EPA Reportable Quantity: 1000 pounds
- 8.7 EPA Pollution Category: C
- 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: 73.1
- 9.3 Boiling Point at 1 atm: 145°F = 63°C = 336°K
- 9.4 Freezing Point: -155°F = -104°C = 169°K
- 9.5 Critical Temperature: Currently not available
- 9.6 Critical Pressure: Currently not available
- 9.7 Specific Gravity: 0.721 at 20°C (liquid)
- 9.8 Liquid Surface Tension: 22.42 dynes/cm = 0.02242 N/m at 20°C
- 9.9 Liquid Water Interfacial Tension: Not pertinent
- 9.10 Vapor (Gas) Specific Gravity: 2.52
- 9.11 Ratio of Specific Heats of Vapor (Gas): (est.) 1.073 at 20°C
- 9.12 Latent Heat of Vaporization: 178.09 Btu/lb = 98.94 cal/g = 4.160 X 10<sup>5</sup> J/kg
- 9.13 Heat of Combustion: -17,600 Btu/lb = -9,780 cal/g = 409 X 10<sup>5</sup> J/kg
- 9.14 Heat of Decomposition: Not pertinent
- 9.15 Heat of Solution: -170 Btu/lb = -93 cal/g = -3.9 X 10<sup>5</sup> J/kg
- 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: 6.1 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
34	46.120	60	0.480	60	1.048		
36	46.050	61	0.480	61	1.048		C
38	45.980	62	0.480	62	1.048		U
40	45.910	63	0.480	63	1.048		R
42	45.850	64	0.480	64	1.048		R
44	45.780	65	0.480	65	1.048		E
46	45.710	66	0.480	66	1.048		N
48	45.640	67	0.480	67	1.048		T
50	45.570	68	0.480	68	1.048		L
52	45.500	69	0.480	69	1.048		Y
54	45.430	70	0.480	70	1.048		
56	45.360	71	0.480	71	1.048		N
58	45.290	72	0.480	72	1.048		O
60	45.220	73	0.480	73	1.048		T
62	45.150	74	0.480	74	1.048		
64	45.080	75	0.480	75	1.048		A
66	45.010	76	0.480	76	1.048		V
68	44.940	77	0.480	77	1.048		A
70	44.870						I
72	44.810						L
74	44.740						A
76	44.670						B
78	44.600						L
80	44.530						L
82	44.460						E
84	44.390						

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	35	0.896	35	0.01233	0	0.357
	I	40	1.074	40	0.01464	20	0.369
	S	45	1.283	45	0.01732	40	0.381
	C	50	1.528	50	0.02041	60	0.393
	I	55	1.813	55	0.02399	80	0.405
	B	60	2.144	60	0.02810	100	0.416
	L	65	2.528	65	0.03291	120	0.428
	E	70	2.971	70	0.03819	140	0.439
		75	3.481	75	0.04433	160	0.450
		80	4.066	80	0.05131	180	0.462
		85	4.737	85	0.05922	200	0.472
		90	5.503	90	0.06817	220	0.483
		95	6.375	95	0.07827	240	0.494
		100	7.367	100	0.08963	260	0.504
						280	0.514
						300	0.525
						320	0.535
						340	0.544
						360	0.554
						380	0.564
						400	0.573
						420	0.582
						440	0.591