

BUTYL BUTYRATE

BUB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Butanoic acid, butyl ester Butyl butanoate Butyric acid, butyl ester	Liquid Colorless Ester odor Floats on water.
<p>Shut off ignition sources. Call fire department. Avoid contact with liquid and vapor. Keep people away. Stop discharge if possible. Stay upwind. Use water spray to "knock down" vapor. Isolate and remove discharged material. Notify local health and pollution control agencies.</p>	
Fire	<p>COMBUSTIBLE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Water may be ineffective on fire. Extinguish with dry chemicals, alcohol foam, or carbon dioxide. 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 headache or dizziness. 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.</p> <p>LIQUID Irritating to skin and eyes. If swallowed will cause nausea, vomiting, dizziness, or headache. 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 UNCONSCIOUS: have victim drink water or milk and 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 wildlife officials. Notify operators of local water intakes.</p>

1. CORRECTIVE RESPONSE ACTIONS

- Stop discharge
- Contain
- Collection Systems: Skim
- Chemical and Physical Treatment: Burn
- Clean shore line
- Salvage waterfowl

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 34; Esters
- 2.2 Formula: C₈H₁₆CO₂
- 2.3 IMO/UN Designation: Not Listed
- 2.4 DOT ID No.: Not Listed
- 2.5 CAS Registry No.: 109-21-7
- 2.6 NAERG Guide No.: Not listed
- 2.7 Standard Industrial Trade Classification: 51377

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: All-purpose canister mask or chemical cartridge respirator; glass or face
- 3.2 Symptoms Following Exposure: Inhalation or ingestion causes headache, dizziness, nausea, vomiting, and narcosis. Contact with liquid irritates eyes.
- 3.3 Treatment of Exposure: INHALATION: Move victim to fresh air and call a physician; give artificial respiration if necessary. INGESTION: Induce vomiting and call a physician. EYES: Flush with water for at least 15 minutes. SKIN: Flush with water; wash with soap and water.
- 3.4 TLV-TWA: Not listed.
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 Toxicity by Ingestion: Grade 1; LD₅₀ = 9.5 g/kg (rbt)
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Currently not available
- 3.10 Vapor (Gas) Irritant Characteristics: Currently not available
- 3.11 Liquid or Solid Characteristics: Currently not available
- 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 AEG1: Not listed

4. FIRE HAZARDS

- 4.1 Flash Point: 128°F C.C.
- 4.2 Flammable Limits in Air: Currently not available
- 4.3 Fire Extinguishing Agents: Dry chemical, alcohol foam, or carbon dioxide
- 4.4 Fire Extinguishing Agents Not to Be Used: Water may be ineffective
- 4.5 Special Hazards of Combustion Products: Currently not available
- 4.6 Behavior in Fire: Currently not available
- 4.7 Auto Ignition Temperature: Currently not available
- 4.8 Electrical Hazards: Currently not available
- 4.9 Burning Rate: Currently not available
- 4.10 Adiabatic Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: 52.4 (calc.)
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): 16.0 (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: May attack some forms of 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): Currently not available
- 6.4 Food Chain Concentration Potential: Currently not available
- 6.5 GESAMP Hazard Profile: Bioaccumulation: T
Damage to living resources: (2)
Human Oral hazard: 0
Human Contact hazard: I
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: 98%
- 7.2 Storage Temperature: Ambient
- 7.3 Inert Atmosphere: Currently not available
- 7.4 Venting: Currently not available
- 7.5 IMO Pollution Category: B
- 7.6 Ship Type: 3
- 7.7 Barge Hull Type: Currently not available

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: Yes
- 8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	2
Instability (Yellow).....	0
- 8.6 EPA Reportable Quantity: Not listed.
- 8.7 EPA Pollution Category: Not listed.
- 8.8 RCRA Waste Number: Not listed
- 8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm: Liquid
- 9.2 Molecular Weight: 144.21
- 9.3 Boiling Point at 1 atm: 332°F = 166.6°C = 440°K
- 9.4 Freezing Point: -133°F = -91.5°C = 182°K
- 9.5 Critical Temperature: Currently not available
- 9.6 Critical Pressure: Currently not available
- 9.7 Specific Gravity: 0.872 @ 20°C
- 9.8 Liquid Surface Tension: Currently not available
- 9.9 Liquid Water Interfacial Tension: Currently not available
- 9.10 Vapor (Gas) Specific Gravity: 4.97
- 9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
- 9.12 Latent Heat of Vaporization: 195.9 Btu/lb = 108.8 cal/g = 4.56 x 10⁵ J/kg
- 9.13 Heat of Combustion: Currently not available
- 9.14 Heat of Decomposition: Currently not available
- 9.15 Heat of Solution: Currently not available
- 9.16 Heat of Polymerization: Currently not available
- 9.17 Heat of Fusion: Currently not available
- 9.18 Limiting Value: Currently not available
- 9.19 Reid Vapor Pressure: 0.2 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
68	54.310		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E

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
	C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.302 0.312 0.322 0.332 0.342 0.352 0.362 0.372 0.382 0.392 0.403 0.413 0.423 0.433 0.443 0.453 0.463 0.473 0.483 0.493 0.503 0.513 0.523 0.533 0.543