

# 2-HYDROXY-4-(METHYLTHIO)-BUTANOIC ACID

HBA

CAUTIONARY RESPONSE INFORMATION			4. FIRE HAZARDS	7. SHIPPING INFORMATION
Common Synonyms Alimet Butyric acid, 2-hydroxy-4-methylthio-HSDB 5700 Methionine hydroxy analog MHA acid MHA-FA	Liquid	Light brown	<p><b>4.1 Flash Point:</b> 250°F C.C.</p> <p><b>4.2 Flammable Limits in Air:</b> Currently not available</p> <p><b>4.3 Fire Extinguishing Agents:</b> Water spray, alcohol foam, dry chemical, carbon dioxide.</p> <p><b>4.4 Fire Extinguishing Agents Not to Be Used:</b> Currently not available</p> <p><b>4.5 Special Hazards of Combustion Products:</b> Currently not available</p> <p><b>4.6 Behavior in Fire:</b> Currently not available</p> <p><b>4.7 Auto Ignition Temperature:</b> Decomposes above 160°C = 320°F</p> <p><b>4.8 Electrical Hazards:</b> Currently not available</p> <p><b>4.9 Burning Rate:</b> Currently not available</p> <p><b>4.10 Adiabatic Flame Temperature:</b> Currently not available</p> <p><b>4.11 Stoichiometric Air to Fuel Ratio:</b> 33.3 (calc.)</p> <p><b>4.12 Flame Temperature:</b> Currently not available</p> <p><b>4.13 Combustion Molar Ratio (Reactant to Product):</b> 11.0 (calc.)</p> <p><b>4.14 Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed</p>	<p><b>7.1 Grades of Purity:</b> Currently not available</p> <p><b>7.2 Storage Temperature:</b> Currently not available</p> <p><b>7.3 Inert Atmosphere:</b> Currently not available</p> <p><b>7.4 Venting:</b> Currently not available</p> <p><b>7.5 IMO Pollution Category:</b> C</p> <p><b>7.6 Ship Type:</b> 3</p> <p><b>7.7 Barge Hull Type:</b> Currently not available</p>
Avoid contact with liquid and vapor. Keep people away. Wear rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies.				<p><b>8. HAZARD CLASSIFICATIONS</b></p> <p><b>8.1 49 CFR Category:</b> Not listed.</p> <p><b>8.2 49 CFR Class:</b> Not pertinent.</p> <p><b>8.3 49 CFR Package Group:</b> Not listed.</p> <p><b>8.4 Marine Pollutant:</b> No</p> <p><b>8.5 NFPA Hazard Classification:</b> Not listed</p> <p><b>8.6 EPA Reportable Quantity:</b> Not listed.</p> <p><b>8.7 EPA Pollution Category:</b> Not listed.</p> <p><b>8.8 RCRA Waste Number:</b> Not listed</p> <p><b>8.9 EPA FWPCA List:</b> Not listed</p>
Fire Combustible. Water may be ineffective on fire. Wear self-contained breathing apparatus and protective clothing. Extinguish with dry chemical, alcohol foam, or CO <sub>2</sub> .				<p><b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b></p> <p><b>9.1 Physical State at 15°C and 1 atm:</b> Liquid</p> <p><b>9.2 Molecular Weight:</b> 150.2</p> <p><b>9.3 Boiling Point at 1 atm:</b> Currently not available</p> <p><b>9.4 Freezing Point:</b> Currently not available</p> <p><b>9.5 Critical Temperature:</b> Currently not available</p> <p><b>9.6 Critical Pressure:</b> Currently not available</p> <p><b>9.7 Specific Gravity:</b> 1.21-1.23</p> <p><b>9.8 Liquid Surface Tension:</b> Currently not available</p> <p><b>9.9 Liquid Water Interfacial Tension:</b> Currently not available</p> <p><b>9.10 Vapor (Gas) Specific Gravity:</b> 5.19</p> <p><b>9.11 Ratio of Specific Heats of Vapor (Gas):</b> Currently not available</p> <p><b>9.12 Latent Heat of Vaporization:</b> Currently not available</p> <p><b>9.13 Heat of Combustion:</b> Currently not available</p> <p><b>9.14 Heat of Decomposition:</b> Currently not available</p> <p><b>9.15 Heat of Solution:</b> Currently not available</p> <p><b>9.16 Heat of Polymerization:</b> Currently not available</p> <p><b>9.17 Heat of Fusion:</b> Currently not available</p> <p><b>9.18 Limiting Value:</b> Currently not available</p> <p><b>9.19 Reid Vapor Pressure:</b> .48-.55 psia</p>
Exposure 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, may 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.			<p><b>5. CHEMICAL REACTIVITY</b></p> <p><b>5.1 Reactivity with Water:</b> No reaction.</p> <p><b>5.2 Reactivity with Common Materials:</b> Corrosive.</p> <p><b>5.3 Stability During Transport:</b> Stable.</p> <p><b>5.4 Neutralizing Agents for Acids and Caustics:</b> Sodium bicarbonate solution. Flush with water.</p> <p><b>5.5 Polymerization:</b> Does not occur.</p> <p><b>5.6 Inhibitor of Polymerization:</b> Not pertinent.</p>	<p><b>6. WATER POLLUTION</b></p> <p><b>6.1 Aquatic Toxicity:</b> Currently not available</p> <p><b>6.2 Waterfowl Toxicity:</b> Currently not available</p> <p><b>6.3 Biological Oxygen Demand (BOD):</b> Currently not available</p> <p><b>6.4 Food Chain Concentration Potential:</b> Currently not available</p> <p><b>6.5 GESAMP Hazard Profile:</b> Bioaccumulation: 0 Damage to living resources: 2 Human Oral hazard: 1 Human Contact hazard: II Reduction of amenities: XX</p>
Water Pollution May be dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.				NOTES
<p><b>1. CORRECTIVE RESPONSE ACTIONS</b></p> <p>Stop discharge Dilute and disperse</p>	<p><b>2. CHEMICAL DESIGNATIONS</b></p> <p>2.1 CG Compatibility Group: 4; Organic acids. 2.2 Formula: CH<sub>3</sub>S(CH<sub>3</sub>)<sub>2</sub>CHOHCOOH 2.3 IMO/UN Designation: Currently not available 2.4 DOT ID No.: Not listed 2.5 CAS Registry No.: 583-91-5 2.6 NAERG Guide No.: Not listed 2.7 Standard Industrial Trade Classification: 51377</p>			
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 Personal Protective Equipment: Wear approved respirator with full face piece, chemical resistant gloves and clothing.</p> <p>3.2 Symptoms Following Exposure: Corrosive to the eyes and moderately irritating to the skin.</p> <p>3.3 Treatment of Exposure: EYES: Flush with plenty of water for at least 15 minutes. SKIN: Remove contaminated clothing. Flush with plenty of water.</p> <p>3.4 TLV-TWA: Not listed.</p> <p>3.5 TLV-STEL: Not listed.</p> <p>3.6 TLV-Ceiling: Not listed.</p> <p>3.7 Toxicity by Ingestion: Grade 2; LD<sub>50</sub> = 3.478 g/kg (rat)</p> <p>3.8 Toxicity by Inhalation: Currently not available.</p> <p>3.9 Chronic Toxicity: Currently not available.</p> <p>3.10 Vapor (Gas) Irritant Characteristics: Vapors cause severe irritation of eyes and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.</p> <p>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.</p> <p>3.12 Odor Threshold: Currently not available.</p> <p>3.13 IDLH Value: Not listed.</p> <p>3.14 OSHA PEL-TWA: Not listed.</p> <p>3.15 OSHA PEL-STEL: Not listed.</p> <p>3.16 OSHA PEL-Ceiling: Not listed.</p> <p>3.17 EPA AEGL: Not listed</p>				

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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
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		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
S O L U 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	0.259 0.267 0.276 0.284 0.292 0.300 0.308 0.316 0.323 0.331 0.338 0.345 0.352 0.359 0.365 0.372 0.378 0.384 0.390 0.396 0.402 0.407 0.413 0.418 0.424