

# 3-METHYL-2-BUTANONE

MBO

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Isopropyl methyl ketone 3-Methyl butan-2-one Methyl isopropyl ketone		Liquid Colorless  Floats on water.
<p>Keep people away. Avoid contact with vapor or liquid. Shut off sources of ignition. Call fire department. Wear self-contained breathing apparatus and full protective clothing. Notify local health and pollution control agencies.</p>		
<b>Fire</b>	<p><b>FLAMMABLE</b> Flashback may occur along vapor trail. Emits toxic fumes under fire conditions. Wear self-contained breathing apparatus and full protective clothing. Extinguish with CO<sub>2</sub>, dry chemical, foam, or water spray.</p>	
<b>Exposure</b>	<p>CALL FOR MEDICAL AID.</p> <p><b>VAPOR</b> Skin and eye irritant. Harmful if inhaled or absorbed through the skin. Remove to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b> Harmful if swallowed or absorbed through the skin. Irritating to the skin and eyes. IF IN EYES: flush with water for at least 15 minutes. Remove contaminated clothing and shoes, flush affected areas with plenty of water IF SWALLOWED: do nothing except keep victim warm. DO NOT INDUCE VOMITING</p>	
<b>Water Pollution</b>	<p>Effect of low concentration on aquatic life is not known. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>	

<b>1. CORRECTIVE RESPONSE ACTIONS</b> Stop discharge	<b>2. CHEMICAL DESIGNATIONS</b> 2.1 CG Compatibility Group: Not listed. 2.2 Formula: (CH <sub>3</sub> ) <sub>2</sub> CH(CO)CH <sub>3</sub> 2.3 IMO/UN Designation: 3.2/2397 2.4 DOT ID No.: 2397 2.5 CAS Registry No.: 563-80-4 2.6 NAERG Guide No.: 127 2.7 Standard Industrial Trade Classification: 51625
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 <b>Personal Protective Equipment:</b> Approved respirator, chemical resistant gloves, chemical safety goggles, other protective clothing.</p> <p>3.2 <b>Symptoms Following Exposure:</b> Irritating to the eyes, nose, throat, upper respiratory tract, and skin.</p> <p>3.3 <b>Treatment of Exposure:</b> Call a physician. EYES: Flush with plenty of water for at least 15 minutes. SKIN: Remove contaminated clothing and shoes, flush affected areas with water. INHALATION: Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. INGESTION: Do nothing except keep victim warm. DO NOT INDUCE VOMITING.</p> <p>3.4 <b>TLV-TWA:</b> 200 ppm</p> <p>3.5 <b>TLV-STEL:</b> Not listed.</p> <p>3.6 <b>TLV-Ceiling:</b> Not listed.</p> <p>3.7 <b>Toxicity by Ingestion:</b> Grade 3; LD<sub>50</sub> = 148 mg/kg (rat)</p> <p>3.8 <b>Toxicity by Inhalation:</b> Currently not available.</p> <p>3.9 <b>Chronic Toxicity:</b> Currently not available</p> <p>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.</p> <p>3.11 <b>Liquid or Solid Characteristics:</b> Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of skin.</p> <p>3.12 <b>Odor Threshold:</b> Currently not available</p> <p>3.13 <b>IDLH Value:</b> Not listed.</p> <p>3.14 <b>OSHA PEL-TWA:</b> Not listed.</p> <p>3.15 <b>OSHA PEL-STEL:</b> Not listed.</p> <p>3.16 <b>OSHA PEL-Ceiling:</b> Not listed.</p> <p>3.17 <b>EPA AEGL:</b> Not listed</p>	

<p><b>4. FIRE HAZARDS</b></p> <p>4.1 <b>Flash Point:</b> 43°F C.C.</p> <p>4.2 <b>Flammable Limits in Air:</b> Currently not available</p> <p>4.3 <b>Fire Extinguishing Agents:</b> CO<sub>2</sub>, dry chemical, foam, or water spray.</p> <p>4.4 <b>Fire Extinguishing Agents Not to Be Used:</b> Not pertinent</p> <p>4.5 <b>Special Hazards of Combustion Products:</b> Acrid smoke and fumes</p> <p>4.6 <b>Behavior in Fire:</b> Currently not available</p> <p>4.7 <b>Auto Ignition Temperature:</b> Currently not available</p> <p>4.8 <b>Electrical Hazards:</b> Currently not available</p> <p>4.9 <b>Burning Rate:</b> Currently not available</p> <p>4.10 <b>Adiabatic Flame Temperature:</b> Currently not available</p> <p>4.11 <b>Stoichiometric Air to Fuel Ratio:</b> 33.3 (calc.)</p> <p>4.12 <b>Flame Temperature:</b> Currently not available</p> <p>4.13 <b>Combustion Molar Ratio (Reactant to Product):</b> 10.0 (calc.)</p> <p>4.14 <b>Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed</p>	<p><b>7. SHIPPING INFORMATION</b></p> <p>7.1 <b>Grades of Purity:</b> 99%</p> <p>7.2 <b>Storage Temperature:</b> Currently not available</p> <p>7.3 <b>Inert Atmosphere:</b> None</p> <p>7.4 <b>Venting:</b> None</p> <p>7.5 <b>IMO Pollution Category:</b> Currently not available</p> <p>7.6 <b>Ship Type:</b> Currently not available</p> <p>7.7 <b>Barge Hull Type:</b> Currently not available</p>								
<p><b>5. CHEMICAL REACTIVITY</b></p> <p>5.1 <b>Reactivity with Water:</b> No reaction</p> <p>5.2 <b>Reactivity with Common Materials:</b> No reaction</p> <p>5.3 <b>Stability During Transport:</b> Stable</p> <p>5.4 <b>Neutralizing Agents for Acids and Caustics:</b> Not pertinent</p> <p>5.5 <b>Polymerization:</b> Not pertinent</p> <p>5.6 <b>Inhibitor of Polymerization:</b> Not pertinent</p>	<p><b>8. HAZARD CLASSIFICATIONS</b></p> <p>8.1 <b>49 CFR Category:</b> Flammable liquid</p> <p>8.2 <b>49 CFR Class:</b> 3</p> <p>8.3 <b>49 CFR Package Group:</b> II</p> <p>8.4 <b>Marine Pollutant:</b> No</p> <p>8.5 <b>NFPA Hazard Classification:</b></p> <table border="1"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>1</td> </tr> <tr> <td>Flammability (Red).....</td> <td>4</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table> <p>8.6 <b>EPA Reportable Quantity:</b> Not listed.</p> <p>8.7 <b>EPA Pollution Category:</b> Not listed.</p> <p>8.8 <b>RCRA Waste Number:</b> Not listed</p> <p>8.9 <b>EPA FWPCA List:</b> Not listed</p>	Category	Classification	Health Hazard (Blue).....	1	Flammability (Red).....	4	Instability (Yellow).....	0
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<p><b>6. WATER POLLUTION</b></p> <p>6.1 <b>Aquatic Toxicity:</b> Currently not available</p> <p>6.2 <b>Waterfowl Toxicity:</b> Currently not available</p> <p>6.3 <b>Biological Oxygen Demand (BOD):</b> Currently not available</p> <p>6.4 <b>Food Chain Concentration Potential:</b> Currently not available</p> <p>6.5 <b>GESAMP Hazard Profile:</b> Bioaccumulation: 0 Damage to living resources: 1 Human Oral hazard: 2 Human Contact hazard: 1 Reduction of amenities: X</p>	<p><b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b></p> <p>9.1 <b>Physical State at 15° C and 1 atm:</b> Liquid</p> <p>9.2 <b>Molecular Weight:</b> 86.15</p> <p>9.3 <b>Boiling Point at 1 atm:</b> 201°F = 94°C = 367°K</p> <p>9.4 <b>Freezing Point:</b> -134°F = -92°C = 181°K</p> <p>9.5 <b>Critical Temperature:</b> Currently not available</p> <p>9.6 <b>Critical Pressure:</b> Currently not available</p> <p>9.7 <b>Specific Gravity:</b> 0.8051 at 20°C</p> <p>9.8 <b>Liquid Surface Tension:</b> Currently not available</p> <p>9.9 <b>Liquid Water Interfacial Tension:</b> Currently not available</p> <p>9.10 <b>Vapor (Gas) Specific Gravity:</b> 2.97</p> <p>9.11 <b>Ratio of Specific Heats of Vapor (Gas):</b> Currently not available</p> <p>9.12 <b>Latent Heat of Vaporization:</b> 161.6 Btu/lb = 89.8 cal/g = 3.8 X 10<sup>5</sup> J/kg</p> <p>9.13 <b>Heat of Combustion:</b> -15,334 Btu/lb = -8,519 cal/g = -357 X 10<sup>3</sup> J/kg</p> <p>9.14 <b>Heat of Decomposition:</b> Currently not available</p> <p>9.15 <b>Heat of Solution:</b> Currently not available</p> <p>9.16 <b>Heat of Polymerization:</b> Not pertinent</p> <p>9.17 <b>Heat of Fusion:</b> Currently not available</p> <p>9.18 <b>Limiting Value:</b> Currently not available</p> <p>9.19 <b>Reid Vapor Pressure:</b> 1.3 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
68	50.260	77	0.500		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	0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190	-1.257 -1.955 -0.652 0.650 0.048 0.745 1.443 2.141 2.838 3.536 4.234 4.931 5.629 6.327 7.025 7.722 8.420 9.118 9.815 10.513		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