

METHACRYLIC ACID

MAD

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 2-Methylacrylic acid alpha-Methylacrylic acid 2-Methyl propenic acid Propenionic acid, 2-Methylene		Liquid	Colorless	Sharp, acid, repulsive odor
		Soluble in water. Freezing point is 61°F.		
Keep people away. Avoid contact with liquid and vapors. Wear goggles, self-contained breathing apparatus, rubber clothing and gloves. Call fire department. Stay upwind and use water to knock down vapor. Notify local health and pollution control agencies.				
Fire	Combustible Poisonous gases may be produced in fire or when heated. Containers may explode if heated. Vapor may explode if ignited in an enclosed area. Extinguish with water, dry chemical, alcohol foam or carbon dioxide. Wear goggles, self-contained breathing apparatus, and rubber overclothing. Combat fires from safe distance or protected location. Use water to cool fire-exposed containers.			
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to skin, eyes and respiratory tract. Move to fresh air. 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 Severe irritant. Corrosive. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with 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. DO NOT INDUCE VOMITING.			
Water Pollution	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.			

1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge Chemical and Physical Treatment: Neutralize	2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 4; Organic acid 2.2 Formula: CH ₂ =C(CH ₃) COOH 2.3 IMO/UN Designation: 8/2531 2.4 DOT ID No.: 2531 2.5 CAS Registry No.: Currently not available 2.6 NAERG Guide No.: 153P 2.7 Standard Industrial Trade Classification: 51373
3. HEALTH HAZARDS 3.1 Personal Protective Equipment: Wear chemical respirator, goggles, rubber overclothing, and gloves. 3.2 Symptoms Following Exposure: INHALATION: Severe irritation to respiratory tract. EYES: Short contact can cause severe damage. SKIN: Causes severe irritation and burns. Ingestion: High hazard - may cause death or permanent injury on short exposure to small quantities. OTHER: May affect blood pressure temporarily. 3.3 Treatment of Exposure: INHALATION: Remove to fresh air. If symptoms are apparent, consult physician promptly. EYES: Flush eyes with large quantities of water for 15 min. and consult physician promptly. SKIN: Flush immediately with plenty of water while removing contaminated clothing. For burns, get medical attention. INGESTION: Give milk or water to drink, if victim is conscious. DO NOT INDUCE VOMITING. Consult a physician. 3.4 TLV-TWA: 20 ppm. 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 4; LD ₅₀ below 50 mg/kg (rats) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Prolonged exposure may damage lungs and kidneys. 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: Fairly severe skin irritant. May cause pain and second degree burns after a few minutes contact. 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: 170°F O.C. 152°F C.C. 4.2 Flammable Limits in Air: 2.4% L.F.L.(calculated) 4.3 Fire Extinguishing Agents: Alcohol foam, carbon dioxide, dry chemical, water spray. 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent 4.5 Special Hazards of Combustion Products: Vapor forms explosive mixtures with air. Thermal decomposition produces carbon monoxide and carbon dioxide. 4.6 Behavior in Fire: Vapors form explosive mixtures with air. Sealed containers may rupture explosively at elevated temperatures (polymerization). 4.7 Auto Ignition Temperature: 752°F 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: 21.4 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 7.0 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	7. SHIPPING INFORMATION 7.1 Grades of Purity: 99% plus; 40% aqueous solution; crude monomer (85%); glacial (98% plus). 7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: Currently not available 7.4 Venting: Currently not available 7.5 IMO Pollution Category: D 7.6 Ship Type: 3 7.7 Barge Hull Type: Currently not available								
5. CHEMICAL REACTIVITY 5.1 Reactivity with Water: No reaction 5.2 Reactivity with Common Materials: Currently not available 5.3 Stability During Transport: Stable if stored away from heat. 5.4 Neutralizing Agents for Acids and Caustics: Sodium carbonate, dilute caustic solutions. 5.5 Polymerization: Heat, strong oxidizers, alkalis, or hydrogen chloride may cause rapid polymerization and release high energy rapidly; may cause explosion under confinement. 5.6 Inhibitor of Polymerization: 0.025% p-methoxyphenol; 1,000 ppm hydroquinone + 250 ppm hydroquinone monomethyl ether.	8. HAZARD CLASSIFICATIONS 8.1 49 CFR Category: Corrosive material 8.2 49 CFR Class: 8 8.3 49 CFR Package Group: III 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification: <table border="1"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue)</td> <td>3</td> </tr> <tr> <td>Flammability (Red)</td> <td>2</td> </tr> <tr> <td>Instability (Yellow)</td> <td>2</td> </tr> </table> 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	Category	Classification	Health Hazard (Blue)	3	Flammability (Red)	2	Instability (Yellow)	2
Category	Classification								
Health Hazard (Blue)	3								
Flammability (Red)	2								
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6. WATER POLLUTION 6.1 Aquatic Toxicity: Currently not available 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): 0.89% in 5 days. 6.4 Food Chain Concentration Potential: Currently not available 6.5 GESAMP Hazard Profile: Bioaccumulation: 0 Damage to living resources: (1) Human Oral hazard: 1 Human Contact hazard: II Reduction of amenities: XX	9. PHYSICAL & CHEMICAL PROPERTIES 9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: 86.09 9.3 Boiling Point at 1 atm: 320-325°F = 160-163°C = 433-436°K 9.4 Freezing Point: 61°F = 16°C = 289°K 9.5 Critical Temperature: Currently not available 9.6 Critical Pressure: Currently not available 9.7 Specific Gravity: 1.015 at 20°C 9.8 Liquid Surface Tension: Currently not available 9.9 Liquid Water Interfacial Tension: Not pertinent 9.10 Vapor (Gas) Specific Gravity: 2.97 9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available 9.12 Latent Heat of Vaporization: Currently not available 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: Currently not available								

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	63.310		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
	S O L U B L E		N O T P E R T I N E N T		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