

# METHYL AMYL ACETATE

MAC

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Hexyl acetate MAAC Methyl isobutyl carbinyl acetate 4-Methyl-2-pentanol acetate 4-Methyl-2-pentyl acetate		Watery liquid	Colorless	Pleasant fruity odor
		Floats on water.		
<p>Keep people away. Call fire department. Avoid contact with liquid. Notify local health and pollution control agencies.</p>				
<b>Fire</b>	<p>COMBUSTIBLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, 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.</p> <p>LIQUID Irritating to skin and eyes. 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>Water Pollution</b>	<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 nearby water intakes.</p>			

<p><b>1. CORRECTIVE RESPONSE ACTIONS</b></p> <p>Stop discharge Contain Collection Systems: Skim Clean shore line Salvage waterfowl</p>	<p><b>2. CHEMICAL DESIGNATIONS</b></p> <p>2.1 <b>CG Compatibility Group:</b> 34; Ester 2.2 <b>Formula:</b> CH<sub>3</sub>COOCH(CH<sub>2</sub>)CH<sub>2</sub>CH(CH<sub>2</sub>)<sub>2</sub> 2.3 <b>IMO/UN Designation:</b> 3.3/1233 2.4 <b>DOT ID No.:</b> 1233 2.5 <b>CAS Registry No.:</b> 108-84-9 2.6 <b>NAERG Guide No.:</b> 129 2.7 <b>Standard Industrial Trade Classification:</b> 51372</p>
<p><b>3. HEALTH HAZARDS</b></p> <p>3.1 <b>Personal Protective Equipment:</b> Organic canister or air pack; rubber gloves; goggles. 3.2 <b>Symptoms Following Exposure:</b> Headache, dizziness, nausea, irritation to respiratory passages. Irritates eyes. 3.3 <b>Treatment of Exposure:</b> INHALATION: remove from exposure immediately; call a physician; if breathing is irregular or has stopped, start resuscitation and administer oxygen. EYE CONTACT: flush with water for at least 15 min. 3.4 <b>TLV-TWA:</b> 50 ppm. 3.5 <b>TLV-STEL:</b> Not listed. 3.6 <b>TLV-Ceiling:</b> Not listed. 3.7 <b>Toxicity by Ingestion:</b> Grade 1; LD<sub>50</sub> = 5 to 15 g/kg 3.8 <b>Toxicity by Inhalation:</b> Currently not available. 3.9 <b>Chronic Toxicity:</b> None 3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Vapors cause moderate irritation, such that personnel will find high concentrations unpleasant. The effect is temporary. 3.11 <b>Liquid or Solid Characteristics:</b> Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin. 3.12 <b>Odor Threshold:</b> Currently not available 3.13 <b>IDLH Value:</b> 500 ppm 3.14 <b>OSHA PEL-TWA:</b> 50 ppm 3.15 <b>OSHA PEL-STEL:</b> Not listed. 3.16 <b>OSHA PEL-Ceiling:</b> Not listed. 3.17 <b>EPA AEGL:</b> Not listed</p>	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** 110°F O.C. 113°F C.C.  
4.2 **Flammable Limits in Air:** 0.9%-5.7% (calc.)  
4.3 **Fire Extinguishing Agents:** Alcohol foam, carbon dioxide, or dry chemical  
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent  
4.5 **Special Hazards of Combustion Products:** Not pertinent  
4.6 **Behavior in Fire:** Not pertinent  
4.7 **Auto Ignition Temperature:** 510°F (calc.)  
4.8 **Electrical Hazards:** Not pertinent  
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:** No reaction  
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:** 230 ppm/24 hr/brine shrimp/TL<sub>m</sub>  
6.2 **Waterfowl Toxicity:** Currently not available  
6.3 **Biological Oxygen Demand (BOD):** 20% of theoretical in 5 days/freshwater  
6.4 **Food Chain Concentration Potential:** None  
6.5 **GESAMP Hazard Profile:**  
Bioaccumulation: 0  
Damage to living resources: 3  
Human Oral hazard: 0  
Human Contact hazard: 0  
Reduction of amenities: 0

## 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 95-99+%  
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:** 3  
7.7 **Barge Hull Type:** Currently not available

## 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable liquid  
8.2 **49 CFR Class:** 3  
8.3 **49 CFR Package Group:** III  
8.4 **Marine Pollutant:** No  
8.5 **NFPA Hazard Classification:**
- |                           |                |
|---------------------------|----------------|
| Category                  | Classification |
| Health Hazard (Blue)..... | 1              |
| 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:** 144.22  
9.3 **Boiling Point at 1 atm:** 295.2°F = 146.2°C = 419.4°K  
9.4 **Freezing Point:** -82.8°F = -63.8°C = 209.4°K  
9.5 **Critical Temperature:** 606.2°F = 319°C = 592.2°K  
9.6 **Critical Pressure:** 382 psia = 26 atm = 2.6 MN/m<sup>2</sup>  
9.7 **Specific Gravity:** 0.860 at 20°C (liquid)  
9.8 **Liquid Surface Tension:** (est.) 25 dynes/cm = 0.025 N/m at 25°C  
9.9 **Liquid Water Interfacial Tension:** (est.) 40 dynes/cm = 0.04 N/m at 25°C  
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent  
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.046  
9.12 **Latent Heat of Vaporization:** 225 Btu/lb = 125 cal/g = 5.23 X 10<sup>5</sup> J/kg  
9.13 **Heat of Combustion:** (est.) -14,400 Btu/lb = -8,000 cal/g = -335 X 10<sup>6</sup> J/kg  
9.14 **Heat of Decomposition:** Not pertinent  
9.15 **Heat of Solution:** Not pertinent  
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:** 0.21 psia

NOTES

# METHYL AMYL ACETATE

MAC

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
35	54.770	35	0.472	42	1.040	42	2.837
40	54.600	40	0.474	44	1.040	44	2.753
45	54.440	45	0.477	46	1.040	46	2.673
50	54.270	50	0.480	48	1.040	48	2.595
55	54.100	55	0.483	50	1.040	50	2.520
60	53.940	60	0.485	52	1.040	52	2.448
65	53.770	65	0.488	54	1.040	54	2.379
70	53.600	70	0.491	56	1.040	56	2.312
75	53.440	75	0.494	58	1.040	58	2.247
80	53.270	80	0.497	60	1.040	60	2.185
85	53.100	85	0.499	62	1.040	62	2.125
90	52.940	90	0.502	64	1.040	64	2.067
95	52.770	95	0.505	66	1.040	66	2.011
100	52.610	100	0.508	68	1.040	68	1.957
105	52.440			70	1.040	70	1.905
110	52.270			72	1.040	72	1.854
115	52.110			74	1.040	74	1.806
120	51.940			76	1.040	76	1.758
125	51.770			78	1.040	78	1.713
130	51.610			80	1.040	80	1.669
135	51.440			82	1.040	82	1.626
140	51.270			84	1.040	84	1.585

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
68	0.100	60	0.051	60	0.00131	0	0.277
		70	0.074	70	0.00187	25	0.291
		80	0.105	80	0.00262	50	0.304
		90	0.148	90	0.00361	75	0.317
		100	0.205	100	0.00491	100	0.329
		110	0.279	110	0.00658	125	0.342
		120	0.375	120	0.00870	150	0.354
		130	0.498	130	0.01135	175	0.366
		140	0.654	140	0.01465	200	0.378
		150	0.848	150	0.01870	225	0.390
		160	1.089	160	0.02362	250	0.401
		170	1.385	170	0.02955	275	0.412
		180	1.744	180	0.03664	300	0.423
		190	2.178	190	0.04504	325	0.434
		200	2.697	200	0.05492	350	0.444
		210	3.313	210	0.06647	375	0.455
		220	4.040	220	0.07987	400	0.465
		230	4.893	230	0.09531	425	0.475
						450	0.485
						475	0.494
						500	0.503
						525	0.513
						550	0.521
						575	0.530
						600	0.539