

METHYL ISOPROPENYL KETONE

MPK

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Isopropenyl methyl ketone 2-Methyl-1-butene-3-one				Liquid	Colorless	Sweet pleasant odor
Floats on water. Flammable, irritating vapor is produced.						
<p>Evacuate. Keep people away. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies.</p>						
Fire	<p>FLAMMABLE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Combat fires from safe distance or protected location. Extinguish with dry chemicals, foam or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.</p>					
Exposure	<p>Call for medical aid.</p> <p>VAPOR Irritating to eyes, nose and throat. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to skin and eyes. Harmful if swallowed. 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 CONSCIOUS, have victim drink water or milk and have victim 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 nearby water intakes.</p>					

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Contain
 Collection Systems: Skim
 Chemical and Physical Treatment: Burn;
 Absorb
 Clean shore line

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
 2.2 **Formula:** CH₃COC(CH₃)=CH₂
 2.3 **IMO/UN Designation:** 3.2/1246
 2.4 **DOT ID No.:** 1246
 2.5 **CAS Registry No.:** Currently not available
 2.6 **NAERG Guide No.:** 127P
 2.7 **Standard Industrial Trade Classification:** 51625

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles or face shield; rubber gloves.
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of nose and throat. Liquid may cause severe damage to eyes, resulting possibly in some permanent impairment of vision; vapor produces tears. If not removed promptly from skin, liquid may cause delayed pain and blistering. Ingestion causes irritation of mouth and stomach.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim from exposure; give artificial respiration if needed; call physician. EYES: immediately irrigate with copious amounts of water for 15 min.; call physician. SKIN: wash off skin with large volumes of water for 15 min.; call physician if burn has occurred. INGESTION: induce vomiting; call physician.
- 3.4 **TLV-TWA:** Not listed.
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** Not listed.
 3.7 **Toxicity by Ingestion:** Grade 3; oral LD₅₀ = 180 mg/kg (rat)
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 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:** Causes smarting and first-degree burns on short exposure; may cause second-degree burns on long exposure.
 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:** <73°F C.C.
 4.2 **Flammable Limits in Air:** 1.8%-9.0%
 4.3 **Fire Extinguishing Agents:** Dry chemical, foam, carbon dioxide
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective.
 4.5 **Special Hazards of Combustion Products:** Not pertinent
 4.6 **Behavior in Fire:** May polymerize and explode.
 4.7 **Auto Ignition Temperature:** Currently not available
 4.8 **Electrical Hazards:** Currently not available
 4.9 **Burning Rate:** 4.7 mm/min.
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 30.9 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 9.0 (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:** Will polymerize in the absence of inhibitor, especially when heated.
 5.6 **Inhibitor of Polymerization:** Up to 1% hydroquinone

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:** None
 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: 0
 Damage to living resources: 1
 Human Oral hazard: 2
 Human Contact hazard: 1
 Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Pressure-vacuum
 7.5 **IMO Pollution Category:** Currently not available
 7.6 **Ship Type:** Currently not available
 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:** II
 8.4 **Marine Pollutant:** No
 8.5 **NFPA Hazard Classification:**
- | | |
|---------------------------|----------------|
| Category | Classification |
| Health Hazard (Blue)..... | 2 |
| Flammability (Red)..... | - |
| 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:** 84.1
 9.3 **Boiling Point at 1 atm:** 208°F = 98°C = 371°K
 9.4 **Freezing Point:** -65°F = -54°C = 219°K
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 0.85 at 20°C (liquid)
 9.8 **Liquid Surface Tension:** (est.) 26 dynes/cm = 0.026 N/m at 20°C
 9.9 **Liquid Water Interfacial Tension:** (est.) 30 dynes/cm = 0.030 N/m at 20°C
 9.10 **Vapor (Gas) Specific Gravity:** 2.9
 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.0796 at 20°C (68°F)
 9.12 **Latent Heat of Vaporization:** (est.) 182 Btu/lb = 101 cal/g = 4.23 X 10⁵ J/kg
 9.13 **Heat of Combustion:** (est.) -15,500 Btu/lb = -8,600 cal/g = -360 X 10⁵ J/kg
 9.14 **Heat of Decomposition:** Not pertinent
 9.15 **Heat of Solution:** Not pertinent
 9.16 **Heat of Polymerization:** (est.) -380 Btu/lb = -210 cal/g = -8.8 X 10⁵ J/kg
 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
34	54.240	52	0.471	60	1.048	60	0.880
36	54.170	54	0.472	61	1.048	61	0.872
38	54.100	56	0.473	62	1.048	62	0.865
40	54.030	58	0.474	63	1.048	63	0.857
42	53.960	60	0.476	64	1.048	64	0.850
44	53.890	62	0.477	65	1.048	65	0.842
46	53.820	64	0.478	66	1.048	66	0.835
48	53.750	66	0.479	67	1.048	67	0.828
50	53.680	68	0.480	68	1.048	68	0.821
52	53.610	70	0.481	69	1.048	69	0.814
54	53.540	72	0.482	70	1.048	70	0.807
56	53.470	74	0.483	71	1.048	71	0.800
58	53.410	76	0.484	72	1.048	72	0.794
60	53.340	78	0.486	73	1.048	73	0.787
62	53.270	80	0.487	74	1.048	74	0.780
64	53.200	82	0.488	75	1.048	75	0.774
66	53.130	84	0.489	76	1.048	76	0.768
68	53.060	86	0.490	77	1.048	77	0.761
70	52.990						
72	52.920						
74	52.850						
76	52.780						
78	52.710						
80	52.640						
82	52.570						
84	52.500						

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
	I	60	0.519	60	0.00782	0	0.288
	N	70	0.689	70	0.01020	20	0.298
	S	80	0.906	80	0.01316	40	0.307
	O	90	1.179	90	0.01681	60	0.317
	L	100	1.521	100	0.02129	80	0.326
	U	110	1.943	110	0.02672	100	0.335
	B	120	2.462	120	0.03327	120	0.344
	L	130	3.094	130	0.04111	140	0.353
	E	140	3.860	140	0.05043	160	0.361
		150	4.780	150	0.06142	180	0.370
		160	5.878	160	0.07432	200	0.378
		170	7.182	170	0.08936	220	0.387
		180	8.720	180	0.10680	240	0.395
		190	10.520	190	0.12690	260	0.403
		200	12.630	200	0.15000	280	0.411
		210	15.070	210	0.17630	300	0.419
						320	0.426
						340	0.434
						360	0.441
						380	0.448
						400	0.456
						420	0.463
						440	0.470
						460	0.476
						480	0.483
						500	0.490