

METHYL VINYL KETONE

MVK

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 3-Buten-2-one	Liquid Colorless to light yellow Strong irritating odor
Mixes with water. Irritating vapor is produced.	
<p>Evacuate. KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID. Avoid inhalation. Wear rubber overclothing (including gloves). Shut off ignition sources. Call fire department. Stay upwind. Use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	<p>FLAMMABLE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemicals, alcohol 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. If inhaled will cause coughing or difficult breathing. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID POISONOUS IF SWALLOWED. Will burn 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. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.</p>
Water Pollution	<p>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.</p>

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: CH₂COCH=CH₂
- 2.3 IMO/UN Designation: 3.2/1251
- 2.4 DOT ID No.: 1251
- 2.5 CAS Registry No.: 78-94-4
- 2.6 NAERG Guide No.: 131P
- 2.7 Standard Industrial Trade Classification: 51625

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus with full face piece; rubber gloves; chemical goggles or face piece of breathing apparatus.
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of nose and throat. Vapor causes tears; contact with liquid can burn eyes. Liquid irritates skin and will cause burn if not removed at once. Ingestion causes irritation of mouth and stomach.
- 3.3 **Treatment of Exposure:** Get medical attention for all exposures to this compound. **INHALATION:** move victim to fresh air; administer artificial respiration if necessary. **EYES or SKIN:** flush with copious quantity of water for 15 min. **INGESTION:** do NOT induce vomiting.
- 3.4 **TLV-TWA:** Not listed.
- 3.5 **TLV-STEL:** Notice of intended change: 0.2 ppm
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 4; LD₅₀ <50 mg/kg
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 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.
- 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.
- 3.12 **Odor Threshold:** 0.5 mg/m³
- 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:** 30°F O.C. 20°F C.C.
- 4.2 **Flammable Limits in Air:** 2.1% 15.6%
- 4.3 **Fire Extinguishing Agents:** Dry chemical, alcohol 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:** Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. At elevated temperatures (fire conditions) polymerization may take place in containers, causing violent rupture. Unburned vapors are very irritating.
- 4.7 **Auto Ignition Temperature:** 915°F
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** 4.5 mm/min.
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 26.2 (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

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:** Polymerizes spontaneously upon exposure to heat or sunlight
- 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: -
 Human Oral hazard: 3
 Human Contact hazard: II
 Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 98.5+%
- 7.2 **Storage Temperature:** Cool 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).....	3
Instability (Yellow).....	2
- 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:** 70.1
- 9.3 **Boiling Point at 1 atm:** 178.5°F = 81.4°C = 354.6°K
- 9.4 **Freezing Point:** 20°F = -7°C = 266°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 0.864 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** (est.) 24 dynes/cm = 0.024 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 2.4
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.1053
- 9.12 **Latent Heat of Vaporization:** (est.) 203 Btu/lb = 113 cal/g = 4.73 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** (est.) -14,600 Btu/lb = -8,100 cal/g = -340 X 10⁵ J/kg
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Not pertinent
- 9.16 **Heat of Polymerization:** -455 Btu/lb = -253 cal/g = -10.6 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	55.110	42	0.400	51	1.048	51	0.954
36	55.040	44	0.400	52	1.048	52	0.945
38	54.970	46	0.400	53	1.048	53	0.937
40	54.900	48	0.400	54	1.048	54	0.928
42	54.830	50	0.400	55	1.048	55	0.920
44	54.770	52	0.400	56	1.048	56	0.912
46	54.700	54	0.400	57	1.048	57	0.904
48	54.630	56	0.400	58	1.048	58	0.896
50	54.560	58	0.400	59	1.048	59	0.888
52	54.490	60	0.400	60	1.048	60	0.880
54	54.420	62	0.400	61	1.048	61	0.872
56	54.350	64	0.400	62	1.048	62	0.865
58	54.280	66	0.400	63	1.048	63	0.857
60	54.210	68	0.400	64	1.048	64	0.850
62	54.140	70	0.400	65	1.048	65	0.842
64	54.070	72	0.400	66	1.048	66	0.835
66	54.000	74	0.400	67	1.048	67	0.828
68	53.930	76	0.400	68	1.048	68	0.821
70	53.860			69	1.048	69	0.814
72	53.790			70	1.048	70	0.807
74	53.720			71	1.048	71	0.800
76	53.660			72	1.048	72	0.794
78	53.590			73	1.048	73	0.787
80	53.520			74	1.048	74	0.780
82	53.450			75	1.048	75	0.774
84	53.380			76	1.048	76	0.768

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
	M	70	1.390	70	0.01714	0	0.268
	I	75	1.582	75	0.01932	20	0.277
	S	80	1.796	80	0.02174	40	0.285
	C	85	2.035	85	0.02439	60	0.294
	I	90	2.299	90	0.02732	80	0.302
	B	95	2.593	95	0.03052	100	0.311
	L	100	2.917	100	0.03404	120	0.319
	E	105	3.275	105	0.03788	140	0.327
		110	3.670	110	0.04207	160	0.335
		115	4.105	115	0.04664	180	0.343
		120	4.581	120	0.05161	200	0.351
		125	5.104	125	0.05701	220	0.358
		130	5.676	130	0.06286	240	0.366
		135	6.301	135	0.06919	260	0.373
		140	6.982	140	0.07603	280	0.380
		145	7.723	145	0.08341	300	0.388
		150	8.530	150	0.09136	320	0.395
		155	9.405	155	0.09992	340	0.402
		160	10.350	160	0.10910	360	0.408
		165	11.380	165	0.11900	380	0.415
		170	12.490	170	0.12950	400	0.422
		175	13.690	175	0.14090	420	0.428
						440	0.435
						460	0.441
						480	0.447
						500	0.453