

MESITYL OXIDE

MSO

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Isopropylideneacetone Methyl isobutylene ketone 4-Methyl-3-pentene-2-one		Liquid Colorless to light yellow Strong peppermint or honey odor
Floats and mixes with water. Flammable, irritating vapor is produced.		
Keep people away. Shut off ignition sources, call fire department. Stay upwind, use water spray to "knock down" vapor. Notify local health and pollution control agencies.		
Fire	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.	
Exposure	Call for medical aid. VAPOR Irritating to eyes, nose and throat. If inhaled will cause headache, dizziness or difficult breathing. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. 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.	
Water Pollution	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.	

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
 Stop discharge
 Contain
 Collection Systems: Skim
 Chemical and Physical Treatment: Burn;
 Absorb

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 18; Ketone
 2.2 Formula: CH₃COCH=C(CH₃)₂
 2.3 IMO/UN Designation: 3.3/1229
 2.4 DOT ID No.: 1229
 2.5 CAS Registry No.: 141-79-7
 2.6 NAERG Guide No.: 129
 2.7 Standard Industrial Trade Classification: 51625

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Air pack or organic canister mask; rubber gloves; goggles.
 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of nose and throat, headache, dizziness, difficult breathing. Contact with liquid or concentrated vapor causes severe eye irritation. Liquid irritates skin. Ingestion causes irritation of mouth and stomach.
 3.3 **Treatment of Exposure:** INHALATION: move victim to fresh air and restore breathing; call physician. EYES: immediately flush with plenty of water for at least 15 min. SKIN: wash with water. INGESTION: give large amount of water; call physician.
 3.4 **TLV-TWA:** 15 ppm
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** 25 ppm.
 3.7 **Toxicity by Ingestion:** Grade 2; oral LD₅₀ = 1,120 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 cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.
 3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.
 3.12 **Odor Threshold:** 12 ppm
 3.13 **IDLH Value:** 1,400 ppm
 3.14 **OSHA PEL-TWA:** 25 ppm
 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:** 84°F O.C. 73°F C.C.
 4.2 **Flammable Limits in Air:** Currently not available
 4.3 **Fire Extinguishing Agents:** Alcohol foam, dry chemical, 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.
 4.7 **Auto Ignition Temperature:** 652°F
 4.8 **Electrical Hazards:** Currently not available
 4.9 **Burning Rate:** 4.2 mm/min.
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 38.1 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 11.0 (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:** 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: 1
 Human Contact hazard: 1
 Reduction of amenities: 0

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 97+%
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Open (flame arrester)
 7.5 **IMO Pollution Category:** D
 7.6 **Ship Type:** 3
 7.7 **Barge Hull Type:** 3

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)..... | 3 |
| Flammability (Red)..... | 3 |
| 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:** 98.2
 9.3 **Boiling Point at 1 atm:** 266°F = 130°C = 403°K
 9.4 **Freezing Point:** -51°F = -46°C = 227°K
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 0.853 at 20°C (liquid)
 9.8 **Liquid Surface Tension:** 22.9 dynes/cm = 0.0229 N/m at 20°C
 9.9 **Liquid Water Interfacial Tension:** Not pertinent
 9.10 **Vapor (Gas) Specific Gravity:** 3.4
 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
 9.12 **Latent Heat of Vaporization:** 157 Btu/lb = 87 cal/g = 3.7 X 10⁵ J/kg
 9.13 **Heat of Combustion:** -14,400 Btu/lb = -8,000 cal/g = -330 X 10⁵ 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:** 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
15	55.020	70	0.520	42	1.048	52	0.657
20	54.850	75	0.520	44	1.048	54	0.650
25	54.670	80	0.520	46	1.048	56	0.642
30	54.500	85	0.520	48	1.048	58	0.634
35	54.330	90	0.520	50	1.048	60	0.627
40	54.150	95	0.520	52	1.048	62	0.620
45	53.980	100	0.520	54	1.048	64	0.613
50	53.810	105	0.520	56	1.048	66	0.606
55	53.630	110	0.520	58	1.048	68	0.599
60	53.460	115	0.520	60	1.048	70	0.592
65	53.290	120	0.520	62	1.048	72	0.586
70	53.110	125	0.520	64	1.048	74	0.579
75	52.940	130	0.520	66	1.048	76	0.573
80	52.770	135	0.520	68	1.048	78	0.567
85	52.590	140	0.520	70	1.048	80	0.561
90	52.420	145	0.520	72	1.048	82	0.555
95	52.250	150	0.520	74	1.048	84	0.549
100	52.070	155	0.520	76	1.048	86	0.543
		160	0.520				
		165	0.520				
		170	0.520				
		175	0.520				
		180	0.520				
		185	0.520				
		190	0.520				
		195	0.520				

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
34	5.834	55	0.114	55	0.00202		N
36	5.667	60	0.134	60	0.00236		O
38	5.500	65	0.157	65	0.00274		T
40	5.334	70	0.184	70	0.00318		
42	5.167	75	0.215	75	0.00367		P
44	5.000	80	0.250	80	0.00424		E
46	4.834	85	0.290	85	0.00487		R
48	4.667	90	0.336	90	0.00558		T
50	4.500	95	0.387	95	0.00639		I
52	4.334	100	0.446	100	0.00729		N
54	4.167	105	0.512	105	0.00830		E
56	4.000	110	0.587	110	0.00942		N
58	3.834	115	0.670	115	0.01067		T
60	3.667	120	0.764	120	0.01206		
62	3.500	125	0.870	125	0.01361		
64	3.334	130	0.987	130	0.01532		
66	3.167	135	1.119	135	0.01721		
68	3.000	140	1.264	140	0.01929		
70	2.834	145	1.426	145	0.02158		
72	2.667	150	1.606	150	0.02410		
74	2.500	155	1.805	155	0.02686		
76	2.334	160	2.024	160	0.02989		
78	2.167	165	2.267	165	0.03319		
80	2.000	170	2.533	170	0.03680		
82	1.834	175	2.826	175	0.04073		
84	1.667						