

# ACETONE

ACT

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b>			
Dimethyl ketone Propanone 2-Propanone	Watery liquid	Colorless	Sweet odor
Floats and mixes with water. Flammable, irritating vapor is produced.			
<p>Stay upwind and use water spray to "knock down" vapor.                  Shut off ignition sources and call fire department. Keep people away.                  Stop discharge if possible.                  Isolate and remove discharged material.                  Avoid contact with liquid and vapor.                  Notify local health and pollution control agencies.</p>			
<b>Fire</b>	<p><b>FLAMMABLE.</b>                  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><b>DO NOT INDUCE VOMITING                  CALL FOR MEDICAL AID.</b></p> <p><b>VAPOR</b>                  Irritating to eyes, nose and throat.                  If inhaled, may cause difficult breathing or loss of consciousness.                  Move to fresh air.                  If breathing has stopped, give artificial respiration.                  If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b>                  Irritating to eyes.                  Not irritating to skin.                  IF IN EYES, hold eyelids open and flush with plenty of water.</p>		
<b>Water Pollution</b>	Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.		

### 1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse  
 Stop discharge  
 Chemical and Physical Treatment: Burn

### 2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 18; Ketone
- 2.2 Formula: CH<sub>3</sub>COCH<sub>3</sub>
- 2.3 IMO/UN Designation: 3.1/1090
- 2.4 DOT ID No.: 1090
- 2.5 CAS Registry No.: 67-64-1
- 2.6 NAERG Guide No.: 127
- 2.7 Standard Industrial Trade Classification: 51623

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Organic vapor canister or air-supplied mask; synthetic rubber gloves; chemical safety goggles or face splash shield.
- 3.2 **Symptoms Following Exposure:** INHALATION: vapor irritating to eyes and mucous membranes; acts as an anesthetic in very high concentrations. INGESTION: low order of toxicity but very irritating to mucous membranes. SKIN: prolonged excessive contact causes defatting of the skin, possibly leading to dermatitis.
- 3.3 **Treatment of Exposure:** INHALATION: if victim is overcome, remove to fresh air and call a physician; administer artificial respiration if breathing is irregular or stopped. INGESTION: if victim has swallowed large amounts and is conscious and not having convulsions, induce vomiting and get medical help promptly; no specific antidote known. SKIN: wash well with water. EYES: flush with water immediately for at least 15 min. Consult a physician.
- 3.4 TLV-TWA: 500 ppm
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: 750 ppm.
- 3.7 Toxicity by Ingestion: Grade 1; LD<sub>50</sub> = 5 to 15 g/kg (dog)
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Not pertinent
- 3.10 **Vapor (Gas) Irritant Characteristics:** If present in high concentrations, vapors cause moderate irritation of the eyes or respiratory system. Effect is temporary.
- 3.11 **Liquid or Solid Characteristics:** No appreciable hazard. Practically harmless to the skin because it is very volatile and evaporates quickly from the skin.
- 3.12 Odor Threshold: 100 ppm
- 3.13 IDLH Value: 2,500 ppm
- 3.14 OSHA PEL-TWA: 1,000 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: 1°F C.C.
- 4.2 Flammable Limits in Air: 2.6%-12.8%
- 4.3 Fire Extinguishing Agents: Alcohol foam, dry chemical, carbon dioxide
- 4.4 Fire Extinguishing Agents Not to Be Used: Water in straight hose stream will scatter and spread fire and should not be used.
- 4.5 Special Hazards of Combustion Products: Not pertinent
- 4.6 Behavior in Fire: Not pertinent
- 4.7 Auto Ignition Temperature: 869°F
- 4.8 Electrical Hazards: I, D
- 4.9 Burning Rate: 3.9 mm/min.
- 4.10 Adiabatic Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: Currently not available
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): Currently not available
- 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: Avoid contact with strong oxidizing agents, acids
- 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: 14,250 ppm/24 hr/sunfish/killed/tap water  
13,000 ppm/48 hr/mosquito fish/TL<sub>m</sub>/turbid water
- 6.2 Waterfowl Toxicity: Not pertinent
- 6.3 Biological Oxygen Demand (BOD): (Theor) 122%, 5 days
- 6.4 Food Chain Concentration Potential: None noted
- 6.5 GESAMP Hazard Profile:  
 Bioaccumulation: 0  
 Damage to living resources: 0  
 Human Oral hazard: 1  
 Human Contact hazard: 1  
 Reduction of amenities: X

### 7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Technical: 99.5% plus 0.5% water Reagent: 99.5% plus 0.5% water
- 7.2 Storage Temperature: Ambient
- 7.3 Inert Atmosphere: No requirement
- 7.4 Venting: Open (flame arrester) or 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).....	1
Flammability (Red).....	3
Instability (Yellow).....	0
- 8.6 EPA Reportable Quantity: 5000
- 8.7 EPA Pollution Category: D
- 8.8 RCRA Waste Number: U002
- 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: 58.08
- 9.3 Boiling Point at 1 atm: 133°F = 56.1°C = 329.3°K
- 9.4 Freezing Point: -138°F = -94.7°C = 178.5°K
- 9.5 Critical Temperature: 455.0°F = 235°C = 508.2°K
- 9.6 Critical Pressure: 682 psia = 46.4 atm = 4.70 MN/m<sup>2</sup>
- 9.7 Specific Gravity: 0.791 at 20°C (liquid)
- 9.8 Liquid Surface Tension: Not pertinent
- 9.9 Liquid Water Interfacial Tension: Not pertinent
- 9.10 Vapor (Gas) Specific Gravity: 2.0
- 9.11 Ratio of Specific Heats of Vapor (Gas): 1.127
- 9.12 Latent Heat of Vaporization: 220 Btu/lb = 122 cal/g = 5.11 X 10<sup>5</sup> J/kg
- 9.13 Heat of Combustion: -12,250 Btu/lb = -6808 cal/g = -285.0 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: 23.42 cal/g
- 9.18 Limiting Value: Currently not available
- 9.19 Reid Vapor Pressure: 7.25 psia

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
-120	56.350	34	0.507	30	1.193		N O T
-110	55.980	36	0.508	35	1.184		
-100	55.620	38	0.508	40	1.174		
-90	55.250	40	0.509	45	1.164		
-80	54.880	42	0.510	50	1.155		
-70	54.520	44	0.511	55	1.145		
-60	54.150	46	0.512	60	1.135		
-50	53.780	48	0.513	65	1.126		
-40	53.400	50	0.514	70	1.116		
-30	53.030	52	0.514	75	1.106		
-20	52.650	54	0.515	80	1.097		
-10	52.280	56	0.516	85	1.087		
0	51.900	58	0.517	90	1.077		
10	51.520	60	0.518	95	1.068		
20	51.140	62	0.519	100	1.058		
30	50.760	64	0.519	105	1.048		
40	50.380	66	0.520				
50	50.000	68	0.521				
60	49.610	70	0.522				
70	49.230	72	0.523				
80	48.840	74	0.524				
90	48.450	76	0.525				
100	48.070	78	0.525				
110	47.680	80	0.526				
120	47.280	82	0.527				
		84	0.528				

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 I S C I B L E	-20	0.245	-20	0.00302	0	0.275
		-10	0.354	-10	0.00426	25	0.286
		0	0.501	0	0.00590	50	0.296
		10	0.698	10	0.00804	75	0.307
		20	0.956	20	0.01079	100	0.317
		30	1.291	30	0.01427	125	0.327
		40	1.719	40	0.01862	150	0.337
		50	2.260	50	0.02399	175	0.347
		60	2.935	60	0.03056	200	0.357
		70	3.770	70	0.03851	225	0.367
		80	4.791	80	0.04803	250	0.377
		90	6.029	90	0.05934	275	0.386
		100	7.516	100	0.07266	300	0.395
		110	9.290	110	0.08823	325	0.405
		120	11.390	120	0.10630	350	0.414
		130	13.850	130	0.12710	375	0.423
		140	16.720	140	0.15090	400	0.431
		150	20.060	150	0.17800	425	0.440
		160	23.890	160	0.20860	450	0.449
	170	28.290	170	0.24310	475	0.457	
	180	33.300	180	0.28170	500	0.466	
	190	38.980	190	0.32460	525	0.474	
					550	0.482	
					575	0.490	
					600	0.498	