

CYCLOHEXANONE

CCH

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Anone Cyclohexyl ketone Hytrol O Nadone Pimelic ketone Sextone	Watery liquid Colorless to light yellow Sweet, peppermint odor Floats and mixes slowly with water.
<p>Keep people away. Avoid contact with liquid. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Combustible. Extinguish with water, dry chemical, foam, or carbon dioxide.
Exposure	CALL FOR MEDICAL AID. LIQUID Will burn 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. 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
Contain
Collection Systems: Skim
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 18; Ketone
2.2 **Formula:** (C₆H₁₀)₂CO
2.3 **IMO/UN Designation:** 3.3/1915
2.4 **DOT ID No.:** 1915
2.5 **CAS Registry No.:** 108-94-1
2.6 **NAERG Guide No.:** 127
2.7 **Standard Industrial Trade Classification:** 51628

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical goggles.
3.2 **Symptoms Following Exposure:** Inhalation of vapors from hot material can cause narcosis. The liquid may cause dermatitis.
3.3 **Treatment of Exposure:** Immediately flush eyes with plenty of water; call a physician.
3.4 **TLV-TWA:** 25 ppm
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 0.5 to 5 g/kg
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Currently not available
3.10 **Vapor (Gas) Irritant Characteristics:** Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations.
3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure and may cause secondary burns on long exposure.
3.12 **Odor Threshold:** 0.12 ppm
3.13 **IDLH Value:** 700 ppm
3.14 **OSHA PEL-TWA:** 50 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:** 129°F O.C. 111°F C.C.
4.2 **Flammable Limits in Air:** 1.1%-9.4%
4.3 **Fire Extinguishing Agents:** Water, dry chemical, foam, or carbon dioxide.
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:** 788°F
4.8 **Electrical Hazards:** Not pertinent
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: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical: 99.87%
7.2 **Storage Temperature:** Currently not available
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Currently not available
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)..... | 1 |
| Flammability (Red)..... | 2 |
| Instability (Yellow)..... | 0 |
- 8.6 **EPA Reportable Quantity:** 5000 pounds
8.7 **EPA Pollution Category:** D
8.8 **RCRA Waste Number:** U057
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:** 98.15
9.3 **Boiling Point at 1 atm:** 312.4°F = 155.8°C = 429.0°K
9.4 **Freezing Point:** -24.2°F = -31.2°C = 242.0°K
9.5 **Critical Temperature:** 672.8°F = 356°C = 629.2°K
9.6 **Critical Pressure:** 560 psia = 38 atm = 3.8 MN/m²
9.7 **Specific Gravity:** 0.945 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 34 dynes/cm = 0.034 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** 90 dynes/cm = 0.090 N/m at 22.7°C
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.084
9.12 **Latent Heat of Vaporization:** 160 Btu/lb = 91 cal/g = 3.8 X 10⁵ J/kg
9.13 **Heat of Combustion:** -15,430 Btu/lb = -8570 cal/g = -358.8 X 10³ 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:** 0.8 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
35	60.020	35	0.419	35	1.066	55	2.513
40	59.880	40	0.421	40	1.054	60	2.377
45	59.730	45	0.424	45	1.043	65	2.250
50	59.580	50	0.427	50	1.032	70	2.133
55	59.440	55	0.430	55	1.021	75	2.023
60	59.290	60	0.432	60	1.010	80	1.921
65	59.140	65	0.435	65	0.998	85	1.826
70	58.990	70	0.438	70	0.987	90	1.737
75	58.850	75	0.441	75	0.976	95	1.654
80	58.700	80	0.444	80	0.965	100	1.577
85	58.550	85	0.446	85	0.954	105	1.504
90	58.400	90	0.449	90	0.942	110	1.436
95	58.260	95	0.452	95	0.931	115	1.372
100	58.110	100	0.455			120	1.312
105	57.960					125	1.255
110	57.810					130	1.202
115	57.670					135	1.152
120	57.520					140	1.105
125	57.370					145	1.060
130	57.220					150	1.018
135	57.080					155	0.978
140	56.930					160	0.941
						165	0.905
						170	0.872
						175	0.840

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	5.000	60	0.327	60	0.00575	0	0.222
		70	0.407	70	0.00702	25	0.237
		80	0.503	80	0.00852	50	0.251
		90	0.616	90	0.01025	75	0.265
		100	0.750	100	0.01226	100	0.279
		110	0.907	110	0.01456	125	0.293
		120	1.090	120	0.01719	150	0.306
		130	1.301	130	0.02017	175	0.320
		140	1.543	140	0.02353	200	0.334
		150	1.821	150	0.02731	225	0.347
		160	2.137	160	0.03154	250	0.360
		170	2.496	170	0.03624	275	0.373
		180	2.900	180	0.04146	300	0.386
		190	3.355	190	0.04721	325	0.399
		200	3.863	200	0.05355	350	0.412
		210	4.430	210	0.06049	375	0.425
		220	5.060	220	0.06807	400	0.437
		230	5.757	230	0.07633	425	0.450
		240	6.526	240	0.08529	450	0.462
		250	7.372	250	0.09498	475	0.474
		260	8.299	260	0.10540	500	0.486
		270	9.313	270	0.11670	525	0.498
		280	10.420	280	0.12880	550	0.510
		290	11.620	290	0.14170	575	0.522
		300	12.920	300	0.15550	600	0.534