

CYCLOPROPANE

CPR

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Trimethylene	Liquefied gas Colorless Mild sweet odor
Floats and boils on water. Flammable visible vapor cloud is produced.	
<p>Keep people away. Avoid inhalation. Shut off ignition sources and call fire department. Evacuate area in case of large discharge. Stay upwind. Use water spray to "knock down" vapor. Avoid contact with liquid. 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. Let fire burn. Stop flow of gas if possible. Cool exposed containers and protect men effecting shutoff with water.</p>
Exposure	<p>Call for medical aid.</p> <p>VAPOR If inhaled will cause difficult breathing. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Will cause frostbite. Flush affected areas with plenty of water. DO NOT RUB AFFECTED AREAS.</p>
Water Pollution	Not harmful to aquatic life.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Chemical and Physical Treatment: Burn

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: C₃H₆
- 2.3 IMO/UN Designation: 2/1027
- 2.4 DOT ID No.: 1027
- 2.5 CAS Registry No.: 75-19-4
- 2.6 NAERG Guide No.: 115
- 2.7 Standard Industrial Trade Classification: 51129

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus for high concentrations of vapor; safety goggles or face shield.
- 3.2 **Symptoms Following Exposure:** Inhalation causes some analgesia, anesthesia, pupil dilation, shallow depth of respirations, decreasing muscle tone. Contact with liquid may cause frostbite.
- 3.3 **Treatment of Exposure:** INHALATION: remove promptly to fresh air; if symptoms of asphyxia-tion persist, administer artificial respiration and oxygen; treat symptomatically thereafter. SKIN: if frostbite has occurred, apply warm water; treat burn.
- 3.4 **TLV-TWA:** Not listed.
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Currently not available
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** None
- 3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
- 3.11 **Liquid or Solid Characteristics:** Currently not available
- 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:**
Flammable gas
- 4.2 **Flammable Limits in Air:** 2.4%-10.3%
- 4.3 **Fire Extinguishing Agents:** Shut off flow of gas.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water, foam.
- 4.5 **Special Hazards of Combustion Products:** Not pertinent
- 4.6 **Behavior in Fire:** Containers may explode.
- 4.7 **Auto Ignition Temperature:** 932°F
- 4.8 **Electrical Hazards:** Class I, Group C
- 4.9 **Burning Rate:** Not pertinent
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 21.4 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 6.0 (calc.)
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** N₂ diluent: 11.5%
- 11.7%; CO₂ diluent: 14.0%

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:**
None
- 6.2 **Waterfowl Toxicity:** None
- 6.3 **Biological Oxygen Demand (BOD):** None
- 6.4 **Food Chain Concentration Potential:**
None
- 6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99.5+%; USP
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Safety relief
- 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 gas
- 8.2 **49 CFR Class:** 2.1
- 8.3 **49 CFR Package Group:** Not pertinent.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	1
Flammability (Red).....	4
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:** Gas
- 9.2 **Molecular Weight:** 42.1
- 9.3 **Boiling Point at 1 atm:** -27.2°F = -32.9°C = 240.3°K
- 9.4 **Freezing Point:** -197.3°F = -127.4°C = 145.8°K
- 9.5 **Critical Temperature:** 256.5°F = 124.7°C = 397.9°K
- 9.6 **Critical Pressure:** 798 psia = 54.2 atm = 5.50 MN/m²
- 9.7 **Specific Gravity:** 0.676 at -33°C (liquid)
- 9.8 **Liquid Surface Tension:** 22 dynes/cm = 0.022 N/m at -40°C
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 1.48
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.1790
- 9.12 **Latent Heat of Vaporization:** 203 Btu/lb = 113 cal/g = 4.73 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** 21,247 Btu/lb = -11,804 cal/g = 493.88 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:** 30.92 cal/g
- 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
-110	45.790	-110	0.429	-35	0.947	-110	0.208
-105	45.580	-105	0.431	-30	0.937	-105	0.204
-100	45.360	-100	0.434			-100	0.200
-95	45.140	-95	0.436			-95	0.197
-90	44.930	-90	0.438			-90	0.193
-85	44.710	-85	0.440			-85	0.190
-80	44.490	-80	0.443			-80	0.187
-75	44.280	-75	0.445			-75	0.184
-70	44.060	-70	0.447			-70	0.181
-65	43.840	-65	0.449			-65	0.178
-60	43.630	-60	0.452			-60	0.175
-55	43.410	-55	0.454			-55	0.173
-50	43.190	-50	0.456			-50	0.170
-45	42.980	-45	0.458			-45	0.168
-40	42.760	-40	0.461			-40	0.165
-35	42.540	-35	0.463			-35	0.163
-30	42.330	-30	0.465			-30	0.161

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	-125	0.523	-125	0.00612	0	0.272
	N	-120	0.649	-120	0.00749	20	0.283
	S	-115	0.801	-115	0.00911	40	0.295
	O	-110	0.982	-110	0.01102	60	0.306
	L	-105	1.198	-105	0.01325	80	0.318
	U	-100	1.453	-100	0.01585	100	0.329
	B	-95	1.753	-95	0.01886	120	0.341
	L	-90	2.104	-90	0.02233	140	0.352
	E	-85	2.514	-85	0.02631	160	0.364
		-80	2.989	-80	0.03087	180	0.375
		-75	3.537	-75	0.03606	200	0.387
		-70	4.168	-70	0.04195	220	0.398
		-65	4.892	-65	0.04861	240	0.410
		-60	5.718	-60	0.05611	260	0.421
		-55	6.658	-55	0.06452	280	0.432
		-50	7.723	-50	0.07394	300	0.444
		-45	8.927	-45	0.08443	320	0.455
		-40	10.280	-40	0.09610	340	0.467
		-35	11.810	-35	0.10900	360	0.478
		-30	13.510	-30	0.12330	380	0.490
		-25	15.410	-25	0.13910	400	0.501
		-20	17.530	-20	0.15640	420	0.513
		-15	19.880	-15	0.17540	440	0.524
		-10	22.490	-10	0.19610	460	0.536
		-5	25.360	-5	0.21880	480	0.547
		0	28.530	0	0.24340	500	0.559