

CHLOROMETHYL METHYL ETHER

CME

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Methyl chloromethyl ether, anhydrous Monochloromethyl ether	Liquid Colorless Irritating odor May float or sink in water. Poisonous, flammable vapor is produced.
<p>Evacuate. Keep people away. Avoid contact with liquid and vapor. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	<p>FLAMMABLE. POISONOUS GASES MAY BE PRODUCED IN FIRE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Extinguish with dry chemicals, 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 difficult breathing. Move victim to fresh air. If breathing is difficult, give oxygen.</p> <p>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. DO NOT INDUCE VOMITING.</p>
Water Pollution	<p>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.</p>

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Skim; Pump;
Dredge
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
2.2 **Formula:** ClCH₂OCH₃
2.3 **IMO/UN Designation:** 3.1/1239
2.4 **DOT ID No.:** 1239
2.5 **CAS Registry No.:** 107-30-2
2.6 **NAERG Guide No.:** 131
2.7 **Standard Industrial Trade Classification:** 51616

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus; goggles; rubber gloves; protective clothing.
- 3.2 **Symptoms Following Exposure:** Inhalation causes sore throat, fever, chills, difficulty in breathing. Contact of liquid with eyes causes severe burns and necrosis; vapor is a powerful tear gas. Skin contact causes severe burns and necrosis. Ingestion causes severe burns of mouth and stomach.
- 3.3 **Treatment of Exposure:** INHALATION: remove from exposure; support respiration; call physician. EYES: wash with copious quantities of water for at least 15 min.; call physician. SKIN: wash with large amounts of water. INGESTION: do NOT induce vomiting; give large amounts of water; call a physician.
- 3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Grade 2; oral LD₅₀ = 817 mg/kg (rat)
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Considered to be lung cancer-producing.
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are moderately irritating such that personnel will not usually tolerate moderate or high concentrations.
3.11 **Liquid or Solid Characteristics:** Fairly severe skin irritant. May cause pain and second-degree burns after a few minutes' contact.
3.12 **Odor Threshold:** Currently not available
3.13 **IDLH Value:** Carcinogen-all contact should be avoided
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:** 0°F O.C.
4.2 **Flammable Limits in Air:** Currently not available
4.3 **Fire Extinguishing Agents:** 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:** Irritating and toxic hydrogen chloride and phosgene gases may be formed.
4.6 **Behavior in Fire:** Unburned material may form powerful tear gas. When wet, also forms irritating formaldehyde gas.
4.7 **Auto Ignition Temperature:** Currently not available
4.8 **Electrical Hazards:** Currently not available
4.9 **Burning Rate:** 3.0 mm/min.
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 11.9 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 5.0 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Reacts to evolve formaldehyde and hydrogen chloride. The reaction is not violent.
5.2 **Reactivity with Common Materials:** Will react with surface moisture to evolve hydrogen chloride, which is corrosive to metal.
5.3 **Stability During Transport:** Stable
5.4 **Neutralizing Agents for Acids and Caustics:** Flood with water. Rinse with sodium bicarbonate or lime solution.
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: -
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial
7.2 **Storage Temperature:** 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:** Poison
8.2 **49 CFR Class:** 6.1
8.3 **49 CFR Package Group:** I
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:** Not listed
8.6 **EPA Reportable Quantity:** 10 pounds
8.7 **EPA Pollution Category:** A
8.8 **RCRA Waste Number:** U046
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:** 80.5
9.3 **Boiling Point at 1 atm:** 140°F = 60°C = 333°K
9.4 **Freezing Point:** -154.3°F = -103.5°C = 169.7°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 1.07 at 25°C (liquid)
9.8 **Liquid Surface Tension:** (est.) 30 dynes/cm = 0.030 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** Not pertinent
9.10 **Vapor (Gas) Specific Gravity:** 2.8
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.1195
9.12 **Latent Heat of Vaporization:** (est.) 154 Btu/lb = 85.6 cal/g = 3.58 X 10⁵ J/kg
9.13 **Heat of Combustion:** (est.) -7,300 Btu/lb = -4,100 cal/g = -170 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
34	68.570	34	0.431	34	1.048	34	0.251
36	68.480	36	0.432	36	1.048	36	0.248
38	68.389	38	0.433	38	1.048	38	0.245
40	68.299	40	0.434	40	1.048	40	0.242
42	68.209	42	0.436	42	1.048	42	0.239
44	68.120	44	0.437	44	1.048	44	0.237
46	68.030	46	0.438	46	1.048	46	0.234
48	67.940	48	0.439	48	1.048	48	0.231
50	67.849	50	0.440	50	1.048	50	0.229
52	67.759	52	0.441	52	1.048	52	0.226
54	67.669	54	0.442	54	1.048	54	0.224
56	67.580	56	0.443	56	1.048	56	0.221
58	67.490	58	0.444	58	1.048	58	0.219
60	67.400	60	0.446	60	1.048	60	0.217
62	67.309	62	0.447	62	1.048	62	0.214
64	67.219	64	0.448	64	1.048	64	0.212
66	67.129	66	0.449	66	1.048	66	0.210
68	67.040	68	0.450	68	1.048	68	0.208
70	66.950	70	0.451	70	1.048	70	0.206
72	66.860	72	0.452	72	1.048	72	0.204
74	66.770	74	0.453	74	1.048	74	0.201
76	66.679	76	0.454	76	1.048	76	0.199
78	66.589	78	0.456	78	1.048	78	0.197
80	66.500	80	0.457	80	1.048	80	0.196
82	66.410	82	0.458	82	1.048	82	0.194
84	66.320	84	0.459	84	1.048	84	0.192

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	70	3.705	70	0.05245	0	0.214
	N	75	4.137	75	0.05802	20	0.219
	S	80	4.610	80	0.06406	40	0.224
	O	85	5.127	85	0.07059	60	0.229
	L	90	5.691	90	0.07764	80	0.234
	U	95	6.305	95	0.08524	100	0.239
	B	100	6.972	100	0.09342	120	0.243
	L	105	7.696	105	0.10220	140	0.248
	E	110	8.481	110	0.11160	160	0.253
		115	9.331	115	0.12180	180	0.257
		120	10.250	120	0.13260	200	0.262
		125	11.240	125	0.14410	220	0.266
		130	12.300	130	0.15650	240	0.271
		135	13.450	135	0.16960	260	0.275
		140	14.680	140	0.18360	280	0.280
						300	0.284
						320	0.288
						340	0.292
						360	0.296
						380	0.301
						400	0.305
						420	0.309
						440	0.313