

METHALLYL CHLORIDE

MCL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms gamma-Chloroisobutylene 3-Chloro-2-methylpropene beta-Methylal chloride beta-Methylal chloride	Liquid Colorless to yellow Sharp penetrating odor
Floats on water. Flammable, irritating vapor is produced.	
<p>Evacuate. 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.</p>	
Fire	<p>FLAMMABLE. Irritating gases may be produced when heated. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. 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 Harmful if inhaled. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>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 and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</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

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

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
2.2 **Formula:** CH₂=C(CH₃)CH₂Cl
2.3 **IMO/IUN Designation:** 3.2/1993
2.4 **DOT ID No.:** 1993
2.5 **CAS Registry No.:** 563-47-3
2.6 **NAERG Guide No.:** 128
2.7 **Standard Industrial Trade Classification:** 51134

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Organic canister mask; goggles; rubber gloves.
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of nose and throat. Contact of vapor or liquid with eyes causes irritation. Liquid irritates skin. Ingestion causes irritation of mouth and stomach.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim to fresh air; if breathing stops, give artificial respiration and oxygen; subsequent treatment is symptomatic and supportive. EYES: flush with water for at least 15 min.; get medical attention if exposure has been to liquid. SKIN: flush with water; get medical attention if skin is burned. INGESTION: induce vomiting and follow with gastric lavage, demulcents, and saline cathartics; get medical attention.
- 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:** Currently not available
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:** 14°F O.C.
4.2 **Flammable Limits in Air:** 2.3%-9.3%
4.3 **Fire Extinguishing Agents:** Dry chemical, foam, 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 vapors may be formed.
4.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
4.7 **Auto Ignition Temperature:** Currently not available
4.8 **Electrical Hazards:** Currently not available
4.9 **Burning Rate:** 4.4 mm/min.
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 26.2 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 8.0 (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:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 95+%
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:** 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)..... | 2 |
| Flammability (Red)..... | 3 |
| Instability (Yellow)..... | 1 |
- 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:** 90.55
9.3 **Boiling Point at 1 atm:** 162.0°F = 72.2°C = 345.4°K
9.4 **Freezing Point:** <-112°F = <-80°C = <193°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 0.928 at 20°C (liquid)
9.8 **Liquid Surface Tension:** (est.) 25 dynes/cm = 0.025 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** (est.) 32 dynes/cm = 0.032 N/m at 20°C
9.10 **Vapor (Gas) Specific Gravity:** 3.12
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.0893
9.12 **Latent Heat of Vaporization:** 160 Btu/lb = 89 cal/g = 3.7 X 10⁵ J/kg
9.13 **Heat of Combustion:** (est.) -11,600 Btu/lb = -6,500 cal/g = -270 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	58.980	52	0.451	52	0.887		N O T P E R T I N E N T
36	58.910	54	0.452	54	0.887		
38	58.840	56	0.453	56	0.887		
40	58.770	58	0.454	58	0.887		
42	58.700	60	0.456	60	0.887		
44	58.640	62	0.457	62	0.887		
46	58.570	64	0.458	64	0.887		
48	58.500	66	0.459	66	0.887		
50	58.430	68	0.460	68	0.887		
52	58.360	70	0.461	70	0.887		
54	58.290	72	0.462	72	0.887		
56	58.220	74	0.463	74	0.887		
58	58.150	76	0.464	76	0.887		
60	58.080	78	0.466	78	0.887		
62	58.010	80	0.467	80	0.887		
64	57.940	82	0.468	82	0.887		
66	57.870	84	0.469	84	0.887		
68	57.800	86	0.470	86	0.887		
70	57.730						
72	57.660						
74	57.590						
76	57.530						
78	57.460						
80	57.390						
82	57.320						
84	57.250						

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	0.100	55	1.411	55	0.02313	0	0.243
		60	1.608	60	0.02610	20	0.250
		65	1.828	65	0.02939	40	0.258
		70	2.073	70	0.03301	60	0.265
		75	2.345	75	0.03699	80	0.272
		80	2.647	80	0.04137	100	0.279
		85	2.981	85	0.04616	120	0.286
		90	3.349	90	0.05140	140	0.292
		95	3.756	95	0.05712	160	0.299
		100	4.203	100	0.06335	180	0.306
		105	4.695	105	0.07013	200	0.312
		110	5.233	110	0.07749	220	0.318
		115	5.822	115	0.08546	240	0.325
		120	6.466	120	0.09409	260	0.331
		125	7.168	125	0.10340	280	0.337
		130	7.932	130	0.11350	300	0.343
		135	8.763	135	0.12430	320	0.348
		140	9.665	140	0.13600	340	0.354
		145	10.640	145	0.14850	360	0.360
		150	11.700	150	0.16190	380	0.365
		155	12.840	155	0.17630	400	0.371
		160	14.080	160	0.19160	420	0.376
		165	15.410	165	0.20800	440	0.382