

CHLOROACETYL CHLORIDE

CAC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Chloracetyl chloride	Liquid Reacts violently with water. Irritating vapor is produced.	Colorless to light yellow Sharp, extremely irritating odor
Evacuate. Keep people away. Avoid contact with liquid and vapor. Wear goggles and self-contained breathing apparatus. Notify local health and pollution control agencies. Protect water intakes.		
Fire Not flammable. POISONOUS GASES MAY BE PRODUCED WHEN HEATED. DO NOT USE WATER ON ADJACENT FIRES. Cool exposed containers with water.		
Exposure Call for medical aid. VAPOR Irritating to eyes, nose and throat. Move victim to fresh air. If breathing is difficult, give oxygen. 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.		
Water Pollution Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
 Stop discharge
 Chemical and Physical Treatment:
 Neutralize
 Do not add water to undissolved material

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
 2.2 Formula: CICH₂COCl
 2.3 IMO/UN Designation: 8/1752
 2.4 DOT ID No.: 1752
 2.5 CAS Registry No.: 79-04-9
 2.6 NAERG Guide No.: 156
 2.7 Standard Industrial Trade Classification: 51139

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: Acid-type canister mask; self-contained breathing apparatus (full face); rubber gloves and full protective clothing.
- 3.2 Symptoms Following Exposure: Inhalation causes severe irritation of upper respiratory system. External contact causes severe irritation of eyes and skin. Ingestion causes severe irritation of mouth and stomach.
- 3.3 Treatment of Exposure: INHALATION: remove from exposure; support respiration; call physician. EYES: wash with copious amounts of water for 15 min.; call physician. SKIN: wash with large amounts of water; treat burns as required. INGESTION: do NOT induce vomiting; give large amounts of water; call a physician.
- 3.4 TLV-TWA: 0.05 ppm
- 3.5 TLV-STEL: 0.15 ppm
- 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: Vapors are moderately irritating, such that personnel will not usually tolerate moderate or high vapor concentrations.
- 3.11 Liquid or Solid Characteristics: Severe skin irritant. Causes second-and third-degree burns on short contact and is very injurious to the eyes.
- 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: Not flammable
- 4.2 Flammability Limits in Air: Not flammable
- 4.3 Fire Extinguishing Agents: Not flammable
- 4.4 Fire Extinguishing Agents Not to Be Used: Do not use water on adjacent fires.
- 4.5 Special Hazards of Combustion Products: Heat of fire can cause decomposition, with evolution of highly toxic and irritating hydrogen chloride and phosgene vapors.
- 4.6 Behavior in Fire: Highly irritating (tear gas) vapors released when heated. Hydrogen chloride gas is released if in contact with water.
- 4.7 Auto Ignition Temperature: Not pertinent
- 4.8 Electrical Hazards: Not pertinent
- 4.9 Burning Rate: Not pertinent
- 4.10 Adiabatic Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: Not Pertinent
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): Not Pertinent
- 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

- 5.1 Reactivity with Water: Reacts vigorously to generate hydrogen chloride (hydrochloric acid).
- 5.2 Reactivity with Common Materials: Will react with surface moisture to generate hydrogen chloride, which is corrosive to metals.
- 5.3 Stability During Transport: Stable
- 5.4 Neutralizing Agents for Acids and Caustics: Flush 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: 2
 Human Oral hazard: 2
 Human Contact hazard: II
 Reduction of amenities: XXX

NOTES

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:

Category	Classification
Health Hazard (Blue)	3
Flammability (Red)	0
Instability (Yellow)	0
- 8.6 EPA Reportable Quantities: Not listed.
- 8.7 EPA Pollution Category: Not listed.
- 8.8 RCRA Waste Number: Not listed
- 8.9 EPA FWCNA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm: Liquid
- 9.2 Molecular Weight: 112.9
- 9.3 Boiling Point at 1 atm: 221°F = 105°C = 378°K
- 9.4 Freezing Point: -8.5°F = -22.5°C = 250.7°K
- 9.5 Critical Temperature: Not pertinent
- 9.6 Critical Pressure: 1.423 at 20°C (liquid)
- 9.7 Specific Gravity: 1.42 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: Not pertinent
- 9.10 Vapor (Gas) Specific Gravity: 3.9
- 9.11 Ratio of Specific Heats of Vapor (Gas): 1.1191
- 9.12 Latent Heat of Vaporization: 166 Btu/lb = 92.0 cal/g = 3.85 X 10⁵ J/kg
- 9.13 Heat of Combustion: (est.) -4,000 Btu/lb = -2,000 cal/g = -90 X 10⁵ J/kg
- 9.14 Heat of Decomposition: Not pertinent
- 9.15 Heat of Solution: (est.) -54 Btu/lb = -30 cal/g = -1.3 X 10⁵ J/kg
- 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

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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	89.820	82	0.337	34	1.129	52	0.226
36	89.750	84	0.337	36	1.129	54	0.224
38	89.679	86	0.338	38	1.129	56	0.221
40	89.610	88	0.338	40	1.129	58	0.219
42	89.540	90	0.338	42	1.129	60	0.217
44	89.469	92	0.338	44	1.129	62	0.214
46	89.400	94	0.338	46	1.129	64	0.212
48	89.330	96	0.339	48	1.129	66	0.210
50	89.259	98	0.339	50	1.129	68	0.208
52	89.190	100	0.339	52	1.129	70	0.206
54	89.120	102	0.339	54	1.129	72	0.204
56	89.059	104	0.340	56	1.129	74	0.201
58	88.990	106	0.340	58	1.129	76	0.199
60	88.919	108	0.340	60	1.129	78	0.197
62	88.849	110	0.340	62	1.129	80	0.196
64	88.780	112	0.340	64	1.129	82	0.194
66	88.709	114	0.341	66	1.129	84	0.192
68	88.639	116	0.341	68	1.129	86	0.190
70	88.570	118	0.341	70	1.129		
72	88.500	120	0.341	72	1.129		
74	88.429	122	0.342	74	1.129		
76	88.360	124	0.342	76	1.129		
78	88.290	126	0.342	78	1.129		
80	88.219	128	0.342	80	1.129		
82	88.150	130	0.342	82	1.129		
84	88.080	132	0.343	84	1.129		

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
R	0	0	0.024	0	0.00056	0	0.155
E	10	10	0.039	10	0.00087	20	0.158
A	20	20	0.060	20	0.00131	40	0.161
C	30	30	0.091	30	0.00194	60	0.164
T	40	40	0.134	40	0.00282	80	0.167
S	50	50	0.194	50	0.00400	100	0.170
	60	60	0.276	60	0.00558	120	0.173
	70	70	0.385	70	0.00765	140	0.176
	80	80	0.530	80	0.01034	160	0.178
	90	90	0.719	90	0.01376	180	0.181
	100	100	0.962	100	0.01807	200	0.184
	110	110	1.269	110	0.02344	220	0.186
	120	120	1.656	120	0.03004	240	0.189
	130	130	2.135	130	0.03808	260	0.191
	140	140	2.724	140	0.04778	280	0.194
	150	150	3.442	150	0.05938	300	0.196
	160	160	4.308	160	0.07312	320	0.199
	170	170	5.345	170	0.08928	340	0.201
	180	180	6.577	180	0.10810	360	0.203
	190	190	8.030	190	0.13000	380	0.206
	200	200	9.732	200	0.15520	400	0.208
	210	210	11.710	210	0.18400	420	0.210
	220	220	14.000	220	0.21670	440	0.212