

ALLYL CHLORIDE

ALC

CAUTIONARY RESPONSE INFORMATION				4. FIRE HAZARDS	7. SHIPPING INFORMATION								
Common Synonyms 3-Chloropropene 3-Chloropropylene	Liquid	Colorless to yellowish brown or red	Sharp, irritating odor	<p>4.1 Flash Point: -20°F C.C.</p> <p>4.2 Flammable Limits in Air: 3.3%-11.1%</p> <p>4.3 Fire Extinguishing Agents: Foam, dry chemical, carbon dioxide, water spray</p> <p>4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent.</p> <p>4.5 Special Hazards of Combustion Products: Releases irritating hydrogen chloride gas on combustion</p> <p>4.6 Behavior in Fire: Not pertinent</p> <p>4.7 Auto Ignition Temperature: 737°F</p> <p>4.8 Electrical Hazards: I, D</p> <p>4.9 Burning Rate: Currently not available</p> <p>4.10 Adiabatic Flame Temperature: Currently not available</p> <p>4.11 Stoichiometric Air to Fuel Ratio: Currently not available</p> <p>4.12 Flame Temperature: Currently not available</p> <p>4.13 Combustion Molar Ratio (Reactant to Product): Currently not available</p> <p>4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed</p>	<p>7.1 Grades of Purity: 97%</p> <p>7.2 Storage Temperature: Ambient</p> <p>7.3 Inert Atmosphere: No requirement</p> <p>7.4 Venting: Pressure-vacuum</p> <p>7.5 IMO Pollution Category: B</p> <p>7.6 Ship Type: 2</p> <p>7.7 Barge Hull Type: 1</p>								
<p>Avoid contact with liquid and vapor. Keep people away.</p> <p>Shut off ignition sources and call fire department.</p> <p>Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).</p> <p>Stop discharge if possible.</p> <p>Stay upwind and use water spray to "knock down" vapor.</p> <p>Isolate and remove discharged material.</p> <p>Notify local health and pollution control agencies.</p> <p>Protect water intakes.</p>				<p>8. HAZARD CLASSIFICATIONS</p> <p>8.1 49 CFR Category: Flammable liquid</p> <p>8.2 49 CFR Class: 3</p> <p>8.3 49 CFR Package Group: I</p> <p>8.4 Marine Pollutant: No</p> <p>8.5 NFPA Hazard Classification:</p> <table> <tr> <th>Category</th> <th>Classification</th> </tr> <tr> <td>Health Hazard (Blue)</td> <td>3</td> </tr> <tr> <td>Flammability (Red)</td> <td>3</td> </tr> <tr> <td>Instability (Yellow)</td> <td>1</td> </tr> </table> <p>8.6 EPA Reportable Quantity: 1000</p> <p>8.7 EPA Pollution Category: C</p> <p>8.8 RCRA Waste Number: Not listed</p> <p>8.9 EPA FWCNA List: Yes</p>		Category	Classification	Health Hazard (Blue)	3	Flammability (Red)	3	Instability (Yellow)	1
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<p>Fire</p> <p>FLAMMABLE.</p> <p>POISONOUS GASES ARE PRODUCED IN FIRE.</p> <p>Flashback along vapor trail may occur.</p> <p>Vapor may explode if ignited in an enclosed area.</p> <p>Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).</p> <p>Extinguish with dry chemical, alcohol foam, or carbon dioxide.</p> <p>Cool exposed containers with water.</p>				<p>5. CHEMICAL REACTIVITY</p> <p>5.1 Reactivity with Water: No reaction</p> <p>5.2 Reactivity with Common Materials: No reaction</p> <p>5.3 Stability During Transport: Stable</p> <p>5.4 Neutralizing Agents for Acids and Caustics: Not pertinent</p> <p>5.5 Polymerization: Not pertinent</p> <p>5.6 Inhibitor of Polymerization: Not pertinent</p>									
<p>Exposure</p> <p>CALL FOR MEDICAL AID.</p> <p>VAPOR</p> <p>POISONOUS IF INHALED OR IF SKIN IS EXPOSED.</p> <p>Irritating to eyes, nose and throat.</p> <p>Move to fresh air.</p> <p>If breathing has stopped, give artificial respiration.</p> <p>If breathing is difficult, give oxygen.</p> <p>LIQUID</p> <p>POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED.</p> <p>Will burn eyes.</p> <p>Remove contaminated clothing and shoes.</p> <p>Flush affected areas with plenty of water.</p> <p>IF IN EYES, hold eyelids open and flush with plenty of water.</p> <p>IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.</p> <p>IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>				<p>6. WATER POLLUTION</p> <p>6.1 Aquatic Toxicity:</p> <p>2.4 mg/l/*sheepshead minnow/LD50 19.8-24 mg/l/*fathead minnow/LD50 20.9 mg/l/*goldfish/LD50</p> <p>* No time given 48 ppm/96 hr/guppy/TL_m/fresh water</p> <p>6.2 Waterfowl Toxicity: Currently not available</p> <p>6.3 Biological Oxygen Demand (BOD): BOD₂₀ or BOD_{28/70} = 10-40%; BOD₅ = 0.23-0.45 p/p; ThOD = 1.67 p/p</p> <p>6.4 Food Chain Concentration Potential: None noted</p> <p>6.5 GESAMP Hazard Profile:</p> <p>Bioaccumulation: 0 Damage to living resources: 3 Human Oral hazard: 2 Human Contact hazard: II Reduction of amenities: XX</p>									
<p>Water Pollution</p> <p>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.</p> <p>May be dangerous if it enters water intakes.</p> <p>Notify local health and wildlife officials.</p> <p>Notify operators of nearby water intakes.</p>				<p>9. PHYSICAL & CHEMICAL PROPERTIES</p> <p>9.1 Physical State at 15°C and 1 atm: Liquid</p> <p>9.2 Molecular Weight: 76.53</p> <p>9.3 Boiling Point at 1 atm: 113°F = 45°C = 318°K</p> <p>9.4 Freezing Point: -210.1°F = -134.5°C = 138.7°K</p> <p>9.5 Critical Temperature: 465.8°F = 241°C = 514.2°K</p> <p>9.6 Critical Pressure: 690 psia = 47 atm = 4.8 MN/m²</p> <p>9.7 Specific Gravity: 0.94 at 20°C (liquid)</p> <p>9.8 Liquid Surface Tension: 28.9 dynes/cm = 0.0289 N/m at 15°C</p> <p>9.9 Liquid Water Interfacial Tension: Currently not available</p> <p>9.10 Vapor (Gas) Specific Gravity: 2.6</p> <p>9.11 Ratio of Specific Heats of Vapor (Gas): 1.124</p> <p>9.12 Latent Heat of Vaporization: Currently not available</p> <p>9.13 Heat of Combustion: -9749 Btu/lb = -5416 cal/g = -226.8 X 10⁶ J/kg</p> <p>9.14 Heat of Decomposition: Currently not available</p> <p>9.15 Heat of Solution: Currently not available</p> <p>9.16 Heat of Polymerization: Not pertinent</p> <p>9.17 Heat of Fusion: Currently not available</p> <p>9.18 Limiting Value: Currently not available</p> <p>9.19 Reid Vapor Pressure: 10.3 psia</p>									
<p>1. CORRECTIVE RESPONSE ACTIONS</p> <p>Dilute and disperse</p> <p>Stop discharge</p> <p>Collection Systems: Skim</p> <p>Chemical and Physical Treatment: Neutralize; Absorb</p> <p>Salvage waterfowl</p> <p>Do not burn</p> <p>2. CHEMICAL DESIGNATIONS</p> <p>2.1 CG Compatibility Group: 15; Substituted allyl</p> <p>2.2 Formula: CH₂=CHCH₂Cl</p> <p>2.3 IMO/UN Designation: 3.1/1100</p> <p>2.4 DOT ID No.: 1100</p> <p>2.5 CAS Registry No.: 107-05-1</p> <p>2.6 NAERG Guide No.: 131</p> <p>2.7 Standard Industrial Trade Classification: 51139</p> <p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: Respiratory protection: (1 ppm to 2% for 1/2 hr or less) full face mask and canister; (greater concentration) self-contained breathing apparatus or its equivalent. Rubber or neoprene gloves, apron, boots; clean body-covering clothes; chemical goggles, gas-tight goggles, or equivalent; full face shield.</p> <p>3.2 Symptoms Following Exposure: Causes marked irritation of skin and may burn. Burns the eyes; effect may be delayed.</p> <p>3.3 Treatment of Exposure: INHALATION: if ill effects develop, move person to fresh air, keep him warm and quiet. Get medical attention immediately. Start artificial respiration if breathing stops. INGESTION: promptly induce vomiting. Get medical attention immediately; no known antidote; treat symptomatically. EYES: immediately flush with plenty of water for at least 30 min.; get medical attention promptly. SKIN: remove clothing and flush affected area thoroughly.</p> <p>3.4 TLV-TWA: 1 ppm</p> <p>3.5 TLV-STEL: 2 ppm.</p> <p>3.6 TLV-Ceiling: Not listed.</p> <p>3.7 Toxicity by Ingestion: Grade 2; LD₅₀ = 0.5 to 5 g/kg (rat)</p> <p>3.8 Toxicity by Inhalation: Currently not available.</p> <p>3.9 Chronic Toxicity: Lung, liver and kidney damage in experimental animals.</p> <p>3.10 Vapor (Gas) Irritancy Characteristics: Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations.</p> <p>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.</p> <p>3.12 Odor Threshold: > 1 ppm.</p> <p>3.13 IDLH Value: 250 ppm.</p> <p>3.14 OSHA PEL-TWA: 1 ppm.</p> <p>3.15 OSHA PEL-STEL: Not listed.</p> <p>3.16 OSHA PEL-Ceiling: Not listed.</p> <p>3.17 EPA AEGL: Not listed</p>	<p>NOTES</p>												

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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
0	61.620	16	0.310	30	1.040	52	0.358
5	61.390	18	0.310	35	1.040	54	0.354
10	61.170	20	0.310	40	1.040	56	0.350
15	60.940	22	0.310	45	1.040	58	0.346
20	60.720	24	0.310	50	1.040	60	0.342
25	60.490	26	0.310	55	1.040	62	0.338
30	60.270	28	0.310	60	1.040	64	0.334
35	60.040	30	0.310	65	1.040	66	0.331
40	59.820	32	0.310	70	1.040	68	0.327
45	59.590	34	0.310	75	1.040	70	0.324
50	59.360	36	0.310	80	1.040	72	0.320
55	59.140	38	0.310	85	1.040	74	0.317
60	58.910	40	0.310	90	1.040	76	0.313
65	58.690	42	0.310	95	1.040	78	0.310
70	58.460	44	0.310			80	0.307
75	58.240	46	0.310			82	0.304
80	58.010	48	0.310			84	0.300
85	57.790	50	0.310			86	0.297
90	57.560	52	0.310				
95	57.340	54	0.310				
100	57.110	56	0.310				
		58	0.310				
		60	0.310				
		62	0.310				
		64	0.310				
		66	0.310				

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
77	0.330	35	2.514	35	0.03623	0	0.215
		40	2.861	40	0.04081	20	0.221
		45	3.246	45	0.04586	40	0.227
		50	3.675	50	0.05141	60	0.233
		55	4.150	55	0.05749	80	0.239
		60	4.676	60	0.06415	100	0.244
		65	5.257	65	0.07143	120	0.250
		70	5.896	70	0.07936	140	0.255
		75	6.600	75	0.08800	160	0.261
		80	7.371	80	0.09738	180	0.266
		85	8.216	85	0.10750	200	0.271
		90	9.140	90	0.11860	220	0.276
		95	10.150	95	0.13040	240	0.281
		100	11.250	100	0.14330	260	0.286
		105	12.440	105	0.15710	280	0.290
		110	13.740	110	0.17190	300	0.295
		115	15.150	115	0.18790	320	0.299
		120	16.670	120	0.20500	340	0.304
						360	0.308
						380	0.312
						400	0.316
						420	0.320
						440	0.324