

BENZAL CHLORIDE

BZL

CAUTIONARY RESPONSE INFORMATION

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| Common Synonyms Benzyl dichloride Benzylene chloride Benzylidene chloride Chlorbenzal | Liquid Colorless to brown Pungent Sinks in water. Reacts with water. |
| <p style="color: red;">Avoid contact with liquid and vapor. Keep people away. Wear positive pressure breathing apparatus and special protective clothing. Shut off ignition sources. Call fire department. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p> | |
| Fire | <p>COMBUSTIBLE. POISONOUS AND IRRITATING GASES ARE PRODUCED IN FIRE. Containers may explode in fire. Wear positive pressure breathing apparatus and special protective clothing. Extinguish small fires with dry chemical, carbon dioxide, water spray, or foam; large fires with water spray, fog or foam. Combat fires from safe distance or protected location (behind barriers) with unmanned monitor nozzle.</p> |
| Exposure | <p>Call for medical aid.</p> <p>VAPOR May be fatal if inhaled or absorbed through skin. Lacrimator. Irritating to eyes and respiratory tract. Very high concentrations may cause central nervous system depression. Effects may be delayed; keep under observation. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID May be fatal if swallowed or absorbed through the skin. May burn skin and eyes. IF IN EYES OR ON SKIN, flush with running water for at least 15 minutes; hold eyelids open if appropriate. Speed in removing material from skin is extremely important. Remove and isolate contaminated clothing and shoes. Effects may be delayed; keep under observation. IF SWALLOWED and victim is CONSCIOUS, have victim drink several glasses of water. DO NOT INDUCE VOMITING.</p> |
| Water Pollution | <p>Effects 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.</p> |

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| <p>1. CORRECTIVE RESPONSE ACTIONS Stop discharge Collection Systems: Pump; Dredge</p> | <p>2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: Not listed. 2.2 Formula: C₇H₅Cl₂ 2.3 IMO/UN Designation: 6.1/1886 2.4 DOT ID No.: 1886 2.5 CAS Registry No.: 98-87-3 2.6 NAERG Guide No.: 156 2.7 Standard Industrial Trade Classification: 51139</p> |
| <p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: Wear positive pressure breathing apparatus and special protective clothing.</p> <p>3.2 Symptoms Following Exposure: Poisonous; may be fatal if inhaled, absorbed through skin or swallowed. Lacrimator. Irritating to eyes, skin and respiratory tract. May burn skin and eyes. May cause sore throat, coughing and difficulty in breathing. Very high concentrations may cause central nervous system depression.</p> <p>3.3 Treatment of Exposure: INHALATION: Remove victim to fresh air; call emergency medical care. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Immediately flush with running water for at least 15 minutes; hold eyelids open. Speed in removing material from skin is extremely important. Remove and isolate contaminated clothing and shoes at the site. Keep victim quiet and maintain normal body temperature. Effects may be delayed. Keep victim under observation. INGESTION: If swallowed and victim is CONSCIOUS, immediately give several glasses of water. Do not induce vomiting.</p> <p>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; LD₅₀ = 3.249 g/kg (rat) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Possesses mutagenic and tumorigenic properties. Suspected animal carcinogen; indefinite human carcinogen. 3.10 Vapor (Gas) Irritant Characteristics: Highly irritating to the eyes and respiratory system. 3.11 Liquid or Solid Characteristics: Strong irritant and lachrymator. May burn skin and 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</p> | |

4. FIRE HAZARDS

- 4.1 **Flash Point:** 198°F C.C.
4.2 **Flammable Limits in Air:** Currently not available
4.3 **Fire Extinguishing Agents:** Small fires: dry chemical, carbon dioxide, water spray or foam. Large fires: water spray, fog or foam.
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion**
Products: Contain highly toxic irritating phosgene and hydrogen chloride.
4.6 **Behavior in Fire:** Supports combustion: Decomposes to produce toxic and corrosive fumes containing phosgene and hydrogen chloride.
4.7 **Auto Ignition Temperature:** Currently not available
4.8 **Electrical Hazards:** Currently not available
4.9 **Burning Rate:** Currently not available
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 38.1 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 11.0 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Readily hydrolyzes to benzaldehyde under neutral, acid or alkaline conditions.
5.2 **Reactivity with Common Materials:** Reacts with common metals (except nickel and lead) to produce heat and Friedel-Crafts self-condensation type products along with toxic and corrosive hydrogen chloride. Heat build up causes the reaction to accelerate.
5.3 **Stability During Transport:** Stable at atmospheric pressure and ambient temperature when kept free of reactive metals and moisture. Material (stabilized and unstabilized) should be consumed within 90 days. Exposure to moist air and/or heat reduces this period considerably below 90 days.
5.4 **Neutralizing Agents for Acids and Caustics:** Use sodium carbonate or lime to absorb residual spill material.
5.5 **Polymerization:** Can react with common metals (except nickel and lead) to produce Friedel-Crafts condensation products and hydrogen chloride.
5.6 **Inhibitor of Polymerization:** Propylene oxide

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:** Currently not available
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: (3)
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99%; 75 to 93% (crude)
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Currently not available
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:** II
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:** Not listed
8.6 **EPA Reportable Quantity:** 5000 pounds
8.7 **EPA Pollution Category:** D
8.8 **RCRA Waste Number:** U017
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:** 161.03
9.3 **Boiling Point at 1 atm:** 417.2°F = 214.0°C = 487.2°K
9.4 **Freezing Point:** 3.0°F = -16.1°C = 257.1°K
9.5 **Critical Temperature:** Currently not available
9.6 **Critical Pressure:** Currently not available
9.7 **Specific Gravity:** 1.2557 at 14°C
9.8 **Liquid Surface Tension:** 20.20 dynes/cm = 0.0202 N/m at 203.5°C
9.9 **Liquid Water Interfacial Tension:** Currently not available
9.10 **Vapor (Gas) Specific Gravity:** 5.6 (calculated)
9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
9.12 **Latent Heat of Vaporization:** 124 Btu/lb = 69 cal/g = 2.9 X 10⁵ J/kg
9.13 **Heat of Combustion:** Currently not available
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 |
| 57 | 78.400 | | C U R R E N T L Y N O T A V A I L A B L E | | C U R R E N T L Y N O T A V A I L A B L E | | C U R R E N T L Y N O T A V A I L A B L E |

| 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 E A C T S | 100 125 150 175 200 225 250 275 300 325 350 | 0.018 0.050 0.114 0.231 0.425 0.729 1.181 1.826 2.718 3.919 5.501 | 40 60 80 100 120 140 160 180 200 | 0.00052 0.00216 0.00595 0.01307 0.02486 0.04282 0.06858 0.10390 0.15067 | | C U R R E N T L Y N O T A V A I L A B L E |