

# GAMMA-BENZENE HEXACHLORIDE

BHC

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> BHC Gammexane 1,2,3,4,5,6-Hexachlorocyclohexane Lindane Tri-6	Solid crystals or powder, or solution  Solid is light to dark brown  Musty odor  Solid sinks in water. Solution generally floats on water.
<p><b>Restrict access.</b>  <b>Avoid contact with liquid and solid.</b>  <b>Wear goggles and self-contained breathing apparatus.</b>  <b>Call fire department.</b>  <b>Stay upwind and use water spray to "knock down" vapor.</b>  <b>Notify local health and pollution control agencies.</b>  <b>Protect water intakes.</b></p>	
<b>Fire</b>	Solid not flammable, but usually dissolved in combustible liquid. POISONOUS GASES ARE PRODUCED WHEN SOLID IS HEATED OR WHEN SOLUTION BURNS. Wear goggles and self-contained breathing apparatus. Extinguish with foam, dry chemical, or carbon dioxide.
<b>Exposure</b>	CALL FOR MEDICAL AID.  SOLID OR SOLUTION POISONOUS IF SWALLOWED. Irritating to skin and eyes. 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.
<b>Water Pollution</b>	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.

<b>1. CORRECTIVE RESPONSE ACTIONS</b> Stop discharge Contain Collection Systems: Dredge Chemical and Physical Treatment: Absorb Clean shore line	<b>2. CHEMICAL DESIGNATIONS</b> 2.1 <b>CG Compatibility Group:</b> Not listed. 2.2 <b>Formula:</b> (CHCl) <sub>6</sub> 2.3 <b>IMO/UN Designation:</b> 6.1/2761 2.4 <b>DOT ID No.:</b> Not listed 2.5 <b>CAS Registry No.:</b> 58-89-9 2.6 <b>NAERG Guide No.:</b> Not listed. 2.7 <b>Standard Industrial Trade Classification:</b> 51129
<b>3. HEALTH HAZARDS</b>	
<p>3.1 <b>Personal Protective Equipment:</b> Currently not available</p> <p>3.2 <b>Symptoms Following Exposure:</b> Hyperirritability and central nervous excitation: notably vomiting, restlessness, muscle spasms, ataxia, and clonic and tonic convulsions. Subsequent central nervous depression leading to respiratory failure. Occasional dermatitis and urticaria.</p> <p>3.3 <b>Treatment of Exposure:</b> Gastric lavage and saline cathartics (not oil laxatives because they promote absorption). Sedatives: pentobarbital or phenobarbital in amounts adequate to control convulsions. Calcium gluconate intravenously may be used in conjunction with sedatives to control convulsions. Rest and quiet. Do NOT use epinephrine because ventricular fibrillation may result.</p> <p>3.4 <b>TLV-TWA:</b> 0.5 mg/m<sup>3</sup></p> <p>3.5 <b>TLV-STEL:</b> Not listed.</p> <p>3.6 <b>TLV-Ceiling:</b> Not listed.</p> <p>3.7 <b>Toxicity by Ingestion:</b> Gamma isomer (Lindane): Grade 3; LD<sub>50</sub> 50 to 500 mg/kg (rat) Technical mixture: Grade 2; LD<sub>50</sub> 0.5 to 5 g/kg</p> <p>3.8 <b>Toxicity by Inhalation:</b> Currently not available.</p> <p>3.9 <b>Chronic Toxicity:</b> Mutagen to human lymphocytes.</p> <p>3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Moderately irritating. Personnel will not usually tolerate moderate or high concentrations.</p> <p>3.11 <b>Liquid or Solid Characteristics:</b> Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.</p> <p>3.12 <b>Odor Threshold:</b> Currently not available</p> <p>3.13 <b>IDLH Value:</b> 50 mg/m<sup>3</sup></p> <p>3.14 <b>OSHA PEL-TWA:</b> 0.5 mg/m<sup>3</sup> (skin)</p> <p>3.15 <b>OSHA PEL-STEL:</b> Not listed.</p> <p>3.16 <b>OSHA PEL-Ceiling:</b> Not listed.</p> <p>3.17 <b>EPA AEGL:</b> Not listed</p>	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:**  
Not flammable
- 4.2 **Flammable Limits in Air:** Not flammable
- 4.3 **Fire Extinguishing Agents:** Not pertinent
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Toxic gases are generated when solid is heated or when solution burns.
- 4.6 **Behavior in Fire:** Not pertinent
- 4.7 **Auto Ignition Temperature:** Not flammable
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Not flammable
- 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:** 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:**  
0.77 ppm/96 hr/bluegill/TL<sub>50</sub>/fresh water  
0.138 ppm/96 hr/guppy/TL<sub>50</sub>/fresh water  
0.034 ppm/10 hr/coho fry/100% lethal/salt water
- 6.2 **Waterfowl Toxicity:** 2000 mg/kg
- 6.3 **Biological Oxygen Demand (BOD):**  
Currently not available
- 6.4 **Food Chain Concentration Potential:**  
High
- 6.5 **GESAMP Hazard Profile:**  
Bioaccumulation: +  
Damage to living resources: 4  
Human Oral hazard: 3  
Human Contact hazard: II  
Reduction of amenities: XXX

## 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Fortified grade: 40-45% gamma isomer Lindane: pure gamma isomer
- 7.2 **Storage Temperature:** Currently not available
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 7.5 **IMO Pollution Category:** C
- 7.6 **Ship Type:** 3
- 7.7 **Barge Hull Type:** Currently not available

## 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Not listed
- 8.2 **49 CFR Class:** Not pertinent
- 8.3 **49 CFR Package Group:** Not listed.
- 8.4 **Marine Pollutant:** Yes
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** 1 pound
- 8.7 **EPA Pollution Category:** X
- 8.8 **RCRA Waste Number:** U129
- 8.9 **EPA FWPCA List:** Yes

## 9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
- 9.2 **Molecular Weight:** 290.83
- 9.3 **Boiling Point at 1 atm:** Not pertinent
- 9.4 **Freezing Point:** Not pertinent
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 1.891 at 19°C (solid)
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 9.11 **Ratio of Specific Heats of Vapor (Gas):**  
Not pertinent
- 9.12 **Latent Heat of Vaporization:** Not pertinent
- 9.13 **Heat of Combustion:** Not pertinent
- 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
	N O T  P E R T I N E N T		N O T  P E R T I N E N T		N O T  P E R T I N E N T		N O T  P E R T I N E N T

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	0.001		N O T  P E R T I N E N T		N O T  P E R T I N E N T		N O T  P E R T I N E N T