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## Material Safety Data Sheet

### 1,2,3,4,5,6-Hexachlorocyclohexane,gamma- Isomer MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** 1,2,3,4,5,6-Hexachlorocyclohexane,gamma-Isomer

**Catalog Codes:** SLH1075

**CAS#:** 58-89-9

**RTECS:** GV4900000

**TSCA:** TSCA 8(b) inventory:  
1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

**CI#:** Not available.

**Synonym:** gamma-Benzene Hexachloride; Aalindan; Hecicide; Viton; Lindane; gamma-BHC

**Chemical Name:** 1,2,3,4,5,6-Hexachlorocyclohexane, gamma-Isomer

**Chemical Formula:** Not available.

**Contact Information:**

**Sciencelab.com, Inc.**  
14025 Smith Rd.  
Houston, Texas 77396

US Sales: **1-800-901-7247**  
International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**  
1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
{1,2,3,4,5,6}-Hexachlorocyclohexane, gamma-	58-89-9	100

**Toxicological Data on Ingredients:** Isomer 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer: ORAL (LD50): Acute: 76 mg/kg [Rat]. 44 mg/kg [Mouse]. DERMAL (LD50): Acute: 50 mg/kg [Rabbit].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Hazardous in case of skin contact (permeator). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

**CARCINOGENIC EFFECTS:** Classified + (Proven.) by OSHA. Classified A3 (Proven for animal.) by ACGIH. Classified SUSPECTED by NTP.

**MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells.

**TERATOGENIC EFFECTS:** Not available.

**DEVELOPMENTAL TOXICITY:** Classified Development toxin [SUSPECTED].

The substance may be toxic to blood, kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** CLOSED CUP: Higher than 93.3°C (200°F).

**Flammable Limits:** Not available.

**Products of Combustion:** Corrosive and toxic fumes (toxic fumes of halides, hydrogen chloride, and phosgene)

**Fire Hazards in Presence of Various Substances:** Slightly flammable to flammable in presence of heat.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Slightly explosive in presence of heat.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:**

May decompose on heating to produce corrosive and/or toxic fumes.  
Very toxic fumes of chlorides, hydrogen chloride, and phosgene are released when lindane is heated to decomposition.

**Special Remarks on Explosion Hazards:** Containers may explode when heated.

## Section 6: Accidental Release Measures

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Poisonous solid.  
Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F).

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent.  
Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 0.5 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] [1999] Inhalation  
TWA: 0.5 STEL: 1.5 (mg/m<sup>3</sup>) [Canada] Inhalation  
TWA: 0.5 (mg/m<sup>3</sup>) from NIOSH SKIN  
TWA: 0.5 (mg/m<sup>3</sup>) from NIOSH Inhalation  
TWA: 0.1 (mg/m<sup>3</sup>) [United Kingdom (UK)] Inhalation<sup>3</sup>  
Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Powdered solid.)

**Odor:**

Odorless to slight musty odor. Pure Lindane is odorless

**Taste:** Not available.

**Molecular Weight:** 290.83 g/mole

**Color:** White.

**pH (1% soln/water):** Not available.

**Boiling Point:** 323.4°C (614.1°F)

**Melting Point:** 113°C (235.4°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.85 (Water = 1)

**Vapor Pressure:** 0.0000094 mm Hg @ 20 C.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** 1 ppm

**Water/Oil Dist. Coeff.:** The product is more soluble in oil;  $\log(\text{oil/water}) = 3.6$

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, acetone.

**Solubility:**

Soluble in acetone.

Very slightly soluble in cold water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, excess heat.

**Incompatibility with various substances:** Reactive with oxidizing agents, metals, acids, alkalis.

**Corrosivity:** Corrosive in presence of aluminum.

**Special Remarks on Reactivity:**

It decomposes in the presence of alkalies at ambient temperature, forming trichlorobenzenes.

It is decomposed by powdered iron, aluminum, and zinc

Lidane is incompatible with lime, sulfur, calciu arsenate, and other strong alkaline materials.

**Special Remarks on Corrosivity:** Lindane is corrosive to aluminum and other metals.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

Acute oral toxicity (LD50): 44 mg/kg [Mouse].

Acute dermal toxicity (LD50): 50 mg/kg [Rabbit].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified A3 (Proven for animal.) by ACGIH. Classified SUSPECTED by NTP.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells.

DEVELOPMENTAL TOXICITY: Classified Development toxin [SUSPECTED].

May cause damage to the following organs: blood, kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

**Other Toxic Effects on Humans:**

Very hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).

Hazardous in case of skin contact (permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

Can cause adverse reproductive effects and birth defects.

May cause cancer based on animal data.

May affect genetic material based on animal data.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects:

Skin: May cause skin irritation; can be absorbed through skin. May be fatal if absorb pure product through skin.

May affect behavior and cardiovascular system

Inhalation: May cause respiratory tract irritation, cyanosis, and breathing difficulty.

Eyes: Can cause eye irritation. It may be absorbed through the eyes.

Ingestion: Harmful (toxic) if swallowed. Can affect the gastrointestinal system (nausea, vomiting, malaise), behavior (headaches, excitability, unconsciousness, tremor, dizziness, loss of coordination, clonic/tonic seizures, muscle spasm, sleeplessness, CNS depression), and the respiratory system (cyanosis breathing difficulty). May affect metabolism.

Chronic Potential Health Effects:

May affect blood, liver, kidneys, metabolism

## Section 12: Ecological Information

**Ecotoxicity:**

Ecotoxicity in water (LC50): 0.1 ppm 96 hours [Fathead minnow]. 0.1 ppm 96 hours [Bluegill]. 0.1 ppm 96 hours [rainbow trout]. 0.1 ppm any hours [lake trout]. 0.1 ppm any hours [goldfish].

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** Not available.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Toxic Solid, Organic, n.o.s. (Lindane) UNNA: 2810 PG: II

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute:

1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

California prop. 65 (no significant risk level): 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer: 6 mg/day (value)

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

New York release reporting list: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Rhode Island RTK hazardous substances: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Pennsylvania RTK: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Florida: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Minnesota: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Massachusetts RTK: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

New Jersey: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Tennessee: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

California Director's List of Hazardous Substances (8 CCR 339): 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

TSCA 8(b) inventory: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

SARA 302/304/311/312 extremely hazardous substances: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

SARA 313 toxic chemical notification and release reporting: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

CERCLA: Hazardous substances.: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer: 1 lbs. (0.4536 kg)

### Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Classifications:

#### WHMIS (Canada):

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

#### DSCL (EEC):

R25- Toxic if swallowed.

R27- Very toxic in contact with skin.

R37/38- Irritating to respiratory system and skin.

R41- Risk of serious damage to eyes.

R45- May cause cancer.

R61- May cause harm to the unborn child.

S1/2- Keep locked up and out of the reach of children.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28- After contact with skin, wash immediately with plenty of [\*\*\*]

S36/37- Wear suitable protective clothing and gloves.

S39- Wear eye/face protection.

S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S46- If swallowed, seek medical advice immediately and show this container or label.

S53- Avoid exposure - obtain special instructions before use.

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 3

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves.

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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