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

**In Case of Emergency**
CHEMTREC (24hr) 800-424-9300

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

**Chemical Formula**

**CAS#**
58-89-9

**RTECS**
GV4900000

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

**Manufacturer**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Commercial Name(s)**
Not available.

**Synonym**
gamma-Benzene Hexachloride; Aalindan; Hexicide; Viton; Lindane; gamma-BHC

**Chemical Family**
Not available.

**Supplier**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Material Safety Data Sheet**

**Section 1. Chemical Product and Company Identification**

**Common Name/Trade Name**
1,2,3,4,5,6-Hexachlorocyclohexane, gamma-Isomer

**Catalog Number(s).**
H2096

**CAS#**
58-89-9

**RTECS**
GV4900000

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

**Manufacturer**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Commercial Name(s)**
Not available.

**Synonym**
gamma-Benzene Hexachloride; Aalindan; Hexicide; Viton; Lindane; gamma-BHC

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

**Chemical Family**
Not available.

**Chemical Formula**

**CAS#**
58-89-9

**RTECS**
GV4900000

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

**Manufacturer**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Commercial Name(s)**
Not available.

**Synonym**
gamma-Benzene Hexachloride; Aalindan; Hexicide; Viton; Lindane; gamma-BHC

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

**Chemical Family**
Not available.

**Supplier**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Material Safety Data Sheet**

**Section 2. Composition and Information on Ingredients**

**Name**
1) (1,2,3,4,5,6)-Hexachlorocyclohexane, gamma-Isomer

**Exposure Limits**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>58-89-9</td>
<td>0.5</td>
<td>1.5</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Toxicological Data on Ingredients**

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

**Acute Effects**
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 (permeator), of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant). Severe over-exposure can result in death.

**Potential Chronic Health Effects**
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified SUSPECTED by NTP.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to blood, kidneys, liver, heart, 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.

**Personal Protective Equipment**

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Eye protection, face shield.</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>Gloves, face mask.</td>
</tr>
</tbody>
</table>

**Section 15. Additional Information**

IN CASE OF EMERGENCY
CHEMTREC (24hr) 800-424-9300
CALL (310) 516-8000

**Health Hazard**
Very hazardous in case of skin contact (permeator), of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant). Severe over-exposure can result in death.

**Fire Hazard**

**Reactivity**

**See Section 15.**

**Continued on Next Page**
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.

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. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate 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
Not available.

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.

Special Remarks on Explosion Hazards
Very toxic fumes of chlorides, hydrogen chloride, and phosgene are released when lindane is heated to decomposition.

Container 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.

Continued on Next Page
Section 7. Handling and Storage

**Precautions**
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

**Storage**
Keep container tightly closed. Keep container in a cool, well-ventilated area.

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**
Safety glasses. 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/m³) from ACGIH (TLV) [United States] [1999] Inhalation
- TWA: 0.5 STEL: 1.5 (mg/m³) [Canada] Inhalation
- TWA: 0.5 (mg/m³) from NIOSH SKIN
- TWA: 0.5 (mg/m³) from NIOSH Inhalation
- TWA: 0.1 (mg/m³) [United Kingdom (UK)] Inhalation

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

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

**Molecular Weight**
290.83 g/mole

**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.

**Volatile**
Not available.

**Odor Threshold**
1 ppm

**Water/Oil Dist. Coeff.**
The product is more soluble in oil; log(oil/water) = 3.7

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

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

**Solubility**
Soluble in acetone.
Partially soluble in methanol.
Very slightly soluble in cold water.

Continued on Next Page
Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Incompatible materials, excess heat.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with oxidizing agents, metals, acids, alkalis.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Corrosive in presence of aluminum.</td>
</tr>
</tbody>
</table>

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.
- Lindane is incompatible with lime, sulfur, calcium 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. 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 A3 (Proven for animal.) by ACGIH. Classified SUSPECTED by NTP. **MUTAGENIC EFFECTS**: Mutagenic for mammalian somatic cells.

- May cause damage to the following organs: blood, kidneys, liver, heart, central nervous system (CNS).

Other Toxic Effects on Humans

- Very hazardous in case of skin contact (permeator), of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals

- Not available.

Special Remarks on Chronic Effects on Humans


Special Remarks on other Toxic Effects on Humans

- Acute Potential Heath Effects:
  - Skin: May cause skin irritation. It can be absorbed through skin and cause system effects and may affect behavior/central nervous system (see acute ingestion). May be fatal if absorbed through skin.
  - Inhalation: May cause respiratory tract irritation, cyanosis, and breathing difficulty. It may affect the blood (changes in white blood cell count)
  - Eyes: May cause eye irritation.
  - Ingestion: Harmful (toxic) if swallowed. Can cause nausea, vomiting, diarrhea, sweating, malaise. Can affect behavior/central nervous system (headaches, excitability, unconsciousness, tremor, dizziness, irritability, hallucinations, restlessness, loss of coordination, clonic/tonic seizures, muscle spasm, sleeplessness, memory loss, CNS depression), and the respiratory system (cyanosis, breathing difficulty). May affect metabolism.

- Chronic Potential Health Effects:
  - Skin: Prolonged or repeated skin contact may cause dermatitis, and can result in absorption. Absorption may affect behavior/central nervous system (see acute effects), the blood, liver, kidneys, heart (arrhythmias).
  - Ingestion: Prolonged or repeated ingestion may affect behavior/central nervous system (see acute ingestion), brain, blood (changes in red blood cell count), liver, kidneys, heart, endocrine system, metabolism (weight loss).
  - Inhalation: Prolonged or repeated inhalation may affect the blood.
### 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**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14. Transport Information

**DOT Classification**

CLASS 6.1: Poisonous material.

**Identification**

UNNA: 2811 : Toxic Solid, Organic, n.o.s. (Lindane)  PG: II

**Special Provisions for Transport**

Marine Pollutant

**DOT (Pictograms)**

- [DOT Icon]

### Section 15. Other Regulatory Information and Pictograms

**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)

Connecticut hazardous material survey.: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Illinois toxic substances disclosure to employee act: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Illinois chemical safety act: 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

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

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

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

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

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

Louisiana RTK reporting list: 1,2,3,4,5,6-Hexachlorocyclohexane, gamma- Isomer

Louisiana spill reporting: 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
### California Proposition 65 Warnings

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

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

### Other Regulations


EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 200-401-2).

Canada: Listed on Canadian Domestic Substance List (DSL).

China: Listed on National Inventory.

Japan: Listed on National Inventory (ENCS).

Philippines: Listed on National Inventory (PICCS).

Australia: Listed on AICS.

### Other Classifications

<table>
<thead>
<tr>
<th>WHMIS (Canada)</th>
<th>Health Hazard</th>
<th>National Fire Protection Association (U.S.A.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Health</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Flammability</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Reactivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specific hazard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DSCL (EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.</td>
</tr>
<tr>
<td>R36/38- Irritating to eyes and skin.</td>
</tr>
<tr>
<td>R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</td>
</tr>
</tbody>
</table>

| S13- Keep away from food, drink and animal feedingstuffs. |
| S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). |
| S60- This material and its container must be disposed of as hazardous waste. |
| S61- Avoid release to the environment. Refer to special instructions/Safety data sheets. |

### HMIS (U.S.A.)

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

### WHMIS (Canada) (Pictograms)

### DSCL (Europe) (Pictograms)

### TDG (Canada) (Pictograms)

### ADR (Europe) (Pictograms)

### Protective Equipment

Gloves.

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Continued on Next Page
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

| MSDS Code   | H3112  |
| References  | Not available. |
| Other Special Considerations | Not available. |


Printed 1/21/2008.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.