SAFETY DATA SHEET

1. Identification

Product identifier: Chlordane

Other means of identification:
- Item: N-11425
- CAS number: 12789-03-6

Recommended use: Not available.

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

- Company name: Chem Service, Inc.
- Address: 660 Tower Lane
  West Chester, PA 19380
  United States
- Telephone:
  - Toll Free: 800-452-9994
  - Direct: 610-692-3026
- Website: www.chemservice.com
- E-mail: info@chemservice.com

Emergency phone number

- Chemtrec US: 800-424-9300
- Chemtrec outside US: +1 703-527-3887

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Acute toxicity, oral: Category 4
- Acute toxicity, dermal: Category 4
- Carcinogenicity: Category 2

Environmental hazards:
- Hazardous to the aquatic environment, acute hazard: Category 1
- Hazardous to the aquatic environment, long-term hazard: Category 1

OSHA defined hazards: Not classified.

Label elements

Signal word: Warning

Hazard statement:
Harmful if swallowed. Harmful in contact with skin. Suspected of causing cancer. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention:
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response:
If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Take off contaminated clothing and wash before reuse. Collect spillage.

Storage:
Store locked up.

Disposal:
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.
100% of the mixture consists of component(s) of unknown acute inhalation toxicity.

### 3. Composition/information on ingredients

#### Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlordane</td>
<td></td>
<td>12789-03-6</td>
<td>100</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

#### Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

#### Skin contact
Wash off with soap and water. Get medical advice/attention if you feel unwell. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

#### Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

#### Ingestion
Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

#### Most important symptoms/effects, acute and delayed
Direct contact with eyes may cause temporary irritation.

#### Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

#### General information
IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

### 5. Fire-fighting measures

#### Suitable extinguishing media
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

#### Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

#### Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

#### Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

#### Fire fighting equipment/instructions
Move containers from fire area if you can do so without risk.

#### Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

#### General fire hazards
No unusual fire or explosion hazards noted.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

#### Methods and materials for containment and cleaning up
This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

- **Large Spills:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

- **Small Spills:** Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

- **Never return spills to original containers for re-use.** Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

#### Environmental precautions
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities: Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits: This substance has no PEL, TLV, or other recommended exposure limit.

Biological limit values: No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection: Wear appropriate chemical resistant gloves.

Hand protection: Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Other: Wear appropriate thermal protective clothing, when necessary.

Respiratory protection: Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards: We have any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance:

- Physical state: Liquid.
- Form: Liquid
- Color: Amber
- Odor: Not available.
- Odor threshold: Not available.
- pH: Not available.
- Melting point/freezing point: 219.2 - 221 °F (104 - 105 °C) trans isomer
  222.8 - 224.6 °F (106 - 107 °C) cis isomer
- Initial boiling point and boiling range: 347 °F (175 °C) at 1mm Hg
- Flash point: Not available.
- Evaporation rate: Not available.
- Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits:

- Flammability limit - lower (%): Not available.
- Flammability limit - upper (%): Not available.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.
- Vapor pressure: 0.000001 kPa (77 °F (25 °C))
- Vapor density: Not available.
- Relative density: Not available.
Solubility (ies)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility (water)</td>
<td>0.1 mg/l at 25 °C</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Not available.</td>
</tr>
<tr>
<td>(n-octanol/water)</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.59 - 1.63 at 25 °C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C10H6Cl8</td>
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<tr>
<td>Molecular weight</td>
<td>409.8</td>
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<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing.</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability

Material is stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

Conditions to avoid

Contact with incompatible materials.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

- **Inhalation**: No adverse effects due to inhalation are expected.
- **Skin contact**: Harmful in contact with skin.
- **Eye contact**: Direct contact with eyes may cause temporary irritation.
- **Ingestion**: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

- **Acute toxicity**: Harmful in contact with skin. Harmful if swallowed.
- **Skin corrosion/irritation**: Prolonged skin contact may cause temporary irritation.
- **Serious eye damage/eye irritation**: Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

- **Respiratory sensitization**: Not a respiratory sensitizer.
- **Skin sensitization**: This product is not expected to cause skin sensitization.

Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

- **IARC Monographs. Overall Evaluation of Carcinogenicity**: Not listed.
- **US. National Toxicology Program (NTP) Report on Carcinogens**: Not listed.

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure

Not classified.
12. Ecological information

**Ecotoxicity**

Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlordane (CAS 12789-03-6)</td>
<td>Aquatic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crustacea</td>
<td>EC50</td>
</tr>
<tr>
<td></td>
<td>Fish</td>
<td>LC50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Water flea (Simocephalus serrulatus)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rainbow trout, donaldson trout</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

**Persistence and degradability**

**Bioaccumulative potential**

No data available.

**Mobility in soil**

No data available.

**Other adverse effects**

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

**Disposal instructions**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations**

Dispose in accordance with all applicable regulations.

**Hazardous waste code**

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products**

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging**

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

**DOT**

- **UN number**: UN2810
- **UN proper shipping name**: Toxic, liquids, organic, n.o.s., MARINE POLLUTANT
- **Transport hazard class(es)**: 6.1(PGIII)
  - **Class**: 6.1
  - **Subsidiary risk**: -
  - **Label(s)**: 6.1
  - **Packing group**: III
- **Environmental hazards**
  - **Marine pollutant**: Yes
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
- **Special provisions**: IB3, T7, TP1, TP28
- **Packaging exceptions**: 153
- **Packaging non bulk**: 203
- **Packaging bulk**: 241

**IATA**

- **UN number**: UN2810
- **UN proper shipping name**: Toxic liquid, organic, n.o.s.
- **Transport hazard class(es)**: 6.1(PGIII)
  - **Class**: 6.1
  - **Subsidiary risk**: -
  - **Packing group**: III
- **Environmental hazards**: No.
ERG Code
6L

Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.

Other information
Allowed with restrictions.
Passenger and cargo aircraft
Cargo aircraft only
Allowed with restrictions.

IMDG
UN number
UN2810
UN proper shipping name
TOXIC LIQUID, ORGANIC, N.O.S., MARINE POLLUTANT
Transport hazard class(es)
Class 6.1(PGIII)
Subsidiary risk -
Packing group III
Environmental hazards
Marine pollutant Yes
EmS F-A, S-A

Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
Not established.

Transport in bulk according to
Annex II of MARPOL 73/78 and the IBC Code

DOT

IATA; IMDG

Marine pollutant

General information
IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)
Priority pollutant
Bioaccumulative chemical of concern
Toxic pollutant

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
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<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
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<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
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<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
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<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
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<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
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<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date: 10-08-2014
Revision date: 09-09-2019
Version #: 04
NFPA ratings: Health: 2, Flammability: 0, Instability: 0
Chem Service, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

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This product is furnished FOR LABORATORY USE ONLY.

Material name: Chlordane
N-11425  Version #: 04  Revision date: 09-09-2019  Issue date: 10-08-2014

Revision information
Physical & Chemical Properties: Multiple Properties
GHS: Classification