1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Name: Ligustilide
Product Code: SC-489178

Recommended use of the chemical and restrictions on use
For research use only. Not intended for diagnostic or therapeutic use.

2. HAZARDS IDENTIFICATION

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.122).

Classification
Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements
Signal word: Not classified
Hazard statements
Symbols/Pictograms: Not classified
Precautionary Statements - Prevention
Wash hands thoroughly after handling
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention

Hazard statements not otherwise classified (HNOC)
Hazards not otherwise classified (HNOC): Not applicable

Other Information
Unknown acute toxicity
100% of the mixture consists of ingredient(s) of unknown toxicity.

NFPA Health hazards - Flammability - Stability - Physical and chemical properties -
HMIS Health hazards - Flammability - Physical hazards - Personal protection -

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS No: 4431-01-0
Molecular Weight: 190.24
Formula: C₁₂H₁₄O₂

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight %</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
</table>

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4. FIRST AID MEASURES

First Aid Measures

- **General advice**: Consult a physician if necessary. Remove to fresh air.
- **Eye contact**: Wash with plenty of water.
- **Skin Contact**: Wash skin with soap and water.
- **Inhalation**: Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.
- **Ingestion**: Never give anything by mouth to an unconscious person. Clean mouth with water.

**Most important symptoms and effects, both acute and delayed**

- **Symptoms**: No information available.

**Indication of any immediate medical attention and special treatment needed**

- **Note to physicians**: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

- **Suitable Extinguishing Media**: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- **Unsuitable Extinguishing Media**: None.

**Specific hazards arising from the chemical**

- **Specific hazards arising from the chemical**: No information available.
- **Hazardous combustion products**: Carbon oxides.

**Explosion data**

- **Sensitivity to Mechanical Impact**: No information available.
- **Sensitivity to Static Discharge**: No information available.

**Protective equipment and precautions for firefighters**

- **Protective equipment and precautions for firefighters**: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

- **Personal precautions**: Ensure adequate ventilation, especially in confined areas.

**Environmental precautions**

- **Environmental precautions**: See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up**

- **Methods for containment**: Prevent further leakage or spillage if safe to do so.
- **Methods for cleaning up**: Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.
7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling  Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities
Storage Conditions  Keep containers tightly closed in a dry, cool and well-ventilated place. Store at -20 °C.
Incompatible materials  None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure Guidelines  This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls
Engineering Controls  Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment
Eye/face protection  Wear safety glasses with side shields (or goggles).
Skin and Body Protection  Wear protective gloves and protective clothing.
Respiratory protection  If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations  Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

| Physical State | Solid |
| Appearance   | No information available |
| Odor         | No information available |

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Melting point/freezing point</td>
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<tr>
<td>Boiling point</td>
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<tr>
<td>Flash point</td>
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<tr>
<td>Density</td>
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<tr>
<td>Evaporation rate</td>
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</tr>
<tr>
<td>Upper flammability limits</td>
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</tr>
<tr>
<td>Lower flammability limit</td>
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</tr>
<tr>
<td>Vapor pressure</td>
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</tr>
<tr>
<td>Vapor density</td>
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</tr>
<tr>
<td>Specific gravity</td>
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</tr>
<tr>
<td>Water solubility</td>
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<tr>
<td>Solubility in other solvents</td>
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</tr>
<tr>
<td>Partition coefficient</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
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</tr>
<tr>
<td>Kinematic viscosity</td>
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</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
Chemical stability
Possibility of Hazardous Reactions
Hazardous polymerization
Conditions to avoid
Incompatible materials
Hazardous Decomposition Products
Not applicable
Stable under recommended storage conditions.
None under normal processing.
No information available.
Extremes of temperature and direct sunlight.
Strong oxidizing agents.
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Eye contact
Skin Contact
Ingestion
No data available.
No data available.
No data available.
No data available.

Information on toxicological effects
Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Chronic Toxicity
No information available.

Numerical measures of toxicity - Product Information
Unknown acute toxicity
100% of the mixture consists of ingredient(s) of unknown toxicity

12. ECOLOGICAL INFORMATION

Ecotoxicity
May cause long lasting harmful effects to aquatic life
100% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence and degradability
No information available.
Bioaccumulation
No information available.
Mobility
No information available.

13. DISPOSAL CONSIDERATIONS

Disposal of wastes
Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging
Do not reuse container.

14. TRANSPORT INFORMATION

DOT
UN/ID no | UN3288
---|---
Hazard Class | 6.1
Packing Group | III
Proper shipping name | Toxic solid, inorganic, n.o.s.
Description | UN3288, Toxic solid, inorganic, n.o.s., 6.1, III
Emergency Response Guide Number | 151

**IMDG**

UN/ID no | UN3288
---|---
Hazard Class | 6.1
Packing Group | III
Proper shipping name | Toxic solid, inorganic, n.o.s.
Description | UN3288, Toxic solid, inorganic, n.o.s., 6.1, III
Special Provisions | 223, 274
EmS-No | F-A, S-A

**IATA**

UN/ID no | UN3288
---|---
Hazard Class | 6.1
Packing Group | III
Proper shipping name | Toxic solid, inorganic, n.o.s.
Description | UN3288, Toxic solid, inorganic, n.o.s., 6.1, III

### 15. REGULATORY INFORMATION

**International Inventories**

All of the components in the product are on the following Inventory lists

No information available

**X - Listed**

- **TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- **DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- **EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- **ENCS** - Japan Existing and New Chemical Substances
- **IECESC** - China Inventory of Existing Chemical Substances
- **KECL** - Korean Existing and Evaluated Chemical Substances
- **PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**US Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

Acute health hazard | No
Chronic Health Hazard | No
Fire hazard | No
Sudden release of pressure hazard | No
Reactive hazard | No

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

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This product does not contain any substances regulated by state right-to-know regulations

16. OTHER INFORMATION

Revision note
No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet