Section 1. Product and Company Identification

Product Name: Harringtonine
Product ID: H0169
Chemical Name (Synonyms): Cephalotaxine, 4-methyl (2R)-2-hydroxy-2-(3-hydroxy-3-methylbutyl)butanedioate (ester) (9CI)
Supplier: LKT Laboratories, Inc
545 Phalen Blvd.
St. Paul, MN 55130 USA
Ph: 651-644-8424 Fax: 651-644-8357
www.lktlabs.com - getinfo@lktlabs.com
Emergency Phone #: 1-800-424-9300

Section 2. Hazards Identification

GHS Classification
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Skin (Category 2), H310
Acute toxicity, Inhalation (Category 1), H330

GHS Label elements including precautionary statements

Pictogram
Signal word: Danger
Hazard and precautionary statements
Hazard statements
H300 - Fatal if swallowed.
H310 - Fatal if in contact with skin.
H330 - Fatal if inhaled.
Precautionary statements
P260 - Do not breathe dust, fumes, gas, mist, vapors, spray.
P262 - Do not get in eyes, on skin or on clothing.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves, eye protection and face protection.
P284 - In case of inadequate ventilation, wear respiratory protection.
P301+310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+350 - IF ON SKIN: Gently wash with plenty of soap and water.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 - Immediately call a POISON CENTER or doctor/physician.
P330 - Specific treatment is urgent (see supplemental first aid instructions on this label).
P332 - Specific measures (see supplemental first aid instructions on this label).
P335 - Rinse mouth.
P361 - Take off immediately all contaminated clothing.
P361+364 - Take off immediately all contaminated clothing and wash it before reuse.
P363 - Wash contaminated clothing before reuse.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to an approved waste disposal plant.

HMIS Classification
Health hazard: 4
Chronic health hazard: 0
Flammability: 0
Physical hazard: 0

NFPA Rating
Health hazard: 4
Fire hazard: 0
Reactivity hazard: 0

Potential Health Effects
Inhalation: Acute toxicity. Fatal if inhaled.
Skin: Acute toxicity. Fatal if absorbed through skin. May cause skin irritation.
Eyes: Causes eye irritation.
Ingestion: Acute toxicity. Fatal if swallowed.

Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>Formula</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C_{28}H_{37}NO_{9}</td>
<td>26833-85-2</td>
</tr>
<tr>
<td>Formula Wt.</td>
<td>531.59</td>
<td></td>
</tr>
<tr>
<td>EC No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 4. First Aid Measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Eye Contact
Flush eyes with plenty of water for at least 15 minutes and contact a physician.

Skin Contact
Wash with soap and plenty of water for 15 minutes and seek medical attention immediately. Wash contaminated clothing before use.

Inhalation
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician immediately.

Ingestion
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician and poison control immediately.

Section 5. Firefighting Measures

Flash Point
Not available.

Extinguishing Media
Water spray, alcohol-resistant foam, dry chemical powder, or carbon dioxide.

Firefighting Procedures
Wear self-contained breathing apparatus and protective clothing for fire fighting if necessary.

Unusual Fire Hazards
May emit toxic fumes.

Section 6. Accidental Release Measures

Personal Precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing dust, vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental Precautions
Do not let product enter drains.

Methods and materials for containment and cleanup
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Section 7. Handling and Storage

Handling
Wear gloves, goggles and lab coat when handling this material. Use in a well-ventilated area. Use only in a chemical fume hood. Wash thoroughly after handling material.

Storage Conditions
Store in a dry and well-ventilated place in a tightly closed container. Recommended storage temperature: -20°C.

Hazardous Decomposition Products
Nature of decomposition products not known.

Other Remarks
This product is light sensitive.
Section 8. Exposure Controls/Personal Protection

Personal protective equipment
EXPOSURE CONTROLS
Contains no substances with occupational exposure limit values.

PERSONAL PROTECTION
Eye/Face protection: Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Solubility</th>
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</thead>
<tbody>
<tr>
<td>Solid.</td>
<td>Does not mix well with water. Soluble in DMSO to 100mM and in ethanol to 50 mM.</td>
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</table>

<table>
<thead>
<tr>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>White to off-white powder.</td>
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<table>
<thead>
<tr>
<th>Boiling Point</th>
<th>Volatility</th>
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<table>
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<tr>
<th>Melting Point</th>
<th>Density</th>
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<td>73°C-75°C</td>
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<table>
<thead>
<tr>
<th>Solubility</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Flash Point</th>
<th>Ignition temperature</th>
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<table>
<thead>
<tr>
<th>Lower explosion limit</th>
<th>Autoignition temperature</th>
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</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Upper explosion limit</th>
<th>Vapor pressure</th>
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<table>
<thead>
<tr>
<th>Water solubility</th>
<th>Odor</th>
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</thead>
<tbody>
<tr>
<td>Does not mix well with water.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Partition coefficient: n-octanol/water</th>
<th>Odor Threshold</th>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>Relative vapor density</th>
<th>Evaporation rate</th>
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<tbody>
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Section 10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable.</td>
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<table>
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<tr>
<th>Materials To Avoid</th>
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</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Hazardous Decomposition Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of decomposition products not known.</td>
</tr>
</tbody>
</table>
Section 11. Toxicological Information

### Oral LD50
Not available.

### Inhalation LC50
Not available.

### Dermal LD50
Not available.

### Other information on acute toxicity
Not available.

### Skin corrosion/irritation
Not available.

### Serious eye damage/irritation
Not available.

### Respiratory or skin sensitization
Not available.

### Germ cell mutagenicity
Not available.

### Reproductive Toxicity
Not available.

### Aspiration Hazard
Not available.

### Specific organ toxicity single exposure (GHS)
Not available.

### Synergistic effects
Not available.

### Specific organ toxicity repeated exposure (GHS)
Not available.

### Additional Information
RTECS: FK0250000

### Potential Health Effects
- **Inhalation:** Acute toxicity. Fatal if inhaled.
- **Skin:** Acute toxicity. Fatal if absorbed through skin. May cause skin irritation.
- **Eyes:** Causes eye irritation.
- **Ingestion:** Acute toxicity. Fatal if swallowed.

### Carcinogenicity
- **IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.
- **ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- **NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- **OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Section 12. Ecological Information

### Toxicity
Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

### Mobility in soil
Not available.

### PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not
Section 13. Disposal Considerations

Waste Disposal
Dispose of material according to all federal, state, and local regulations. Offer material to a licensed, professional waste disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Dispose of as unused product.

Section 14. Transport Information

DOT (US) Not dangerous goods.

IATA Not dangerous goods.

IMDG Not dangerous goods.

Section 15. Regulatory Information

Reach No.

SARA 302 Components SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title II, Section 302.

SARA 313 Components SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Components No SARA hazards.

Massachusetts Right To Know Components No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components Harringtonine CAS #: 26833-85-2 Revision Date:

New Jersey Right To Know Components Harringtonine CAS #: 26833-85-2 Revision Date:

California Prop 65 Components This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16. Other Information

Other information The information in this document is believed to be correct but is not necessarily complete. LKT does not guarantee the accuracy of the information. The burden of verifying the information in this document rests solely upon the user.