Section 1. Product and Company Identification

Product Name: Patulin
Product ID: P0278
Chemical Name (Synonyms): Clavacin, clavatin, penicidin
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

Section 2. Hazards Identification

GHS Classification
Acute Toxicity, Oral (Category 2)
Skin Corrosion/Irritation (Category 2)

GHS Label elements including precautionary statements

Pictogram
Signal word: Danger
Hazard statements
H300 - Fatal if swallowed.
H315 - Causes skin irritation
Precautionary statements
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood. P281: Use personal protective equipment as required.
P260 - Do not breathe (dust/fume/gas/mist/vapors/spray).
P262 - Do not get in eyes, on skin, or on clothing
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/protective clothing/eye protection/face protection).
P284 - Wear respiratory protection.
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water.
P304 + P340 - 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.
P320 - Specific treatment is urgent (see supplemental first aid instructions on this label).
P330 - Rinse mouth.
P331 - Take several handfuls of milk.
P332 - Remove/Take off immediately all contaminated clothing.
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: 3
Chronic Health Hazard: *
Flammability: 0
Physical Hazards: 0

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

Potential Health Effects
Inhalation - May be harmful if inhaled. May cause respiratory tract irritation.
Skin - May be harmful if absorbed through skin. Causes skin irritation.
Eyes - May cause eye irritation.
Ingestion - Fatal if swallowed.

### Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>Ingredient: Title Compound</th>
<th>Percent: 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C$_7$H$_6$O$_4$</td>
<td>Formula Wt. 154.12</td>
</tr>
<tr>
<td>CAS No.</td>
<td>149-29-1</td>
<td>EC No.</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 water as a precaution.

**Skin Contact**
Wash off with soap and plenty of water.

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

**Ingestion**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### Section 5. Firefighting Measures

**Flash Point**
Not available.

**Extinguishing Media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Firefighting Procedures**
Wear self-contained breathing apparatus for fire fighting if necessary.

**Unusual Fire Hazards**
Carbon oxides, nitrogen oxides (NOx).

### Section 6. Accidental Release Measures

**Personal Precautions**
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**Environmental Precautions**
Prevent further leakage or spillage if safe to do so. 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**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Storage Conditions**
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: +4°C

**Hazardous Decomposition Products**
Not available.

**Other Remarks**
Section 8. Exposure Controls/Personal Protection

Personal protective equipment

EXPOSURE CONTROLS
Contains no substances with occupational exposure limit values.

General industrial hygiene practice.

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

Skin 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.

Body protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: For nuisance exposures, use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection, use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 1243) respirator cartridges. 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>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid.</td>
<td>White to off-white powder.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Boiling Point</th>
<th>Volatility</th>
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<tbody>
<tr>
<td>Not available.</td>
<td>Not available.</td>
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</table>

<table>
<thead>
<tr>
<th>Melting Point</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-111°C</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Solubility</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>acetonitrile, ethanol, acetone, ethyl acetate, also soluble in water</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash Point</th>
<th>Ignition temperature</th>
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</thead>
<tbody>
<tr>
<td>Not available.</td>
<td>Not available.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower explosion limit</th>
<th>Autoignition temperature</th>
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</thead>
<tbody>
<tr>
<td>Not available.</td>
<td>Not available.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Upper explosion limit</th>
<th>Vapor pressure</th>
</tr>
</thead>
<tbody>
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<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water solubility</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partition coefficient: n-octanol/water</th>
<th>Odor Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>log Pow: ca.6.8</td>
<td>Not available.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative vapor density</th>
<th>Evaporation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Section 10. Stability and Reactivity

Stability
Stable under recommended storage conditions.

Materials To Avoid
Strong oxidizing agents.

Hazardous Decomposition Products
Not available.
Section 11. Toxicological Information

**Oral LD50**  Rat - 27790 ug/kg, mouse - 17 mg/kg  
**Inhalation LC50**  Not available.  
**Dermal LD50**  Not available.  
**Other information on acute toxicity**  Not available.  
**Reproductive Toxicity**  Not available.  
**Specific organ toxicity single exposure (GHS)**  Not available.  
**Specific organ toxicity repeated exposure (GHS)**  Not available.  
**Teratogenicity**  Not available.  
**Germ cell mutagenicity**  Not available.  
**Skin corrosion/irritation**  Not available.  
**Serious eye damage/irritation**  Not available.  
**Respiratory or skin sensitization**  Not available.  
**Aspiration Hazard**  Not available.  
**Synergistic effects**  Not available.  
**Additional Information**  RTECS: LV2625000  

Potential Health Effects  Inhalation - May be harmful if inhaled. May cause respiratory tract irritation.  
Skin - May be harmful if absorbed through skin. Causes skin irritation.  
Eyes - May cause eye irritation.  
Ingestion - 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**  Not available.  
**Mobility in soil**  Not available.  
**PBT and vPvB assessment**  PBT/vPvB assessment not available as chemical safety assessment not required/not applicable.
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 to dispose of as unused product.

Section 14. Transport Information

DOT (US)
UN number: 3462     Class: 6.1     Packing Group: II
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Patulin)

IATA
UN number: 3462     Class: 6.1     Packing Group: II
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Patulin)

IMDG
UN number: 3462     Class: 6.1     Packing group: II     EMS-No: F-A, S-A
Proper shipping name: TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. (Patulin)
Marine pollutant: No

Further Information

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 III, 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
Patulin     CAS: 149-29-1

New Jersey Right To Know Components
Patulin     CAS: 149-29-1

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.