Section 1. Product and Company Identification

**Product Name**
Allicin

**Product ID**
A4440

**Chemical Name (Synonyms)**
Allylthiosulphinic acid allyl ester; Diallyl thiosulfinate

**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 4), H302
Skin Corrosion/Irritation (Category 2), H315
Serious Eye Damage/Irritation (Category 2A), H319
Specific Target Organ Systemic Toxicity (Category 3), Respiratory, H335
Carcinogenicity (Category 1B), H350

GHS Label elements including precautionary statements

**Pictogram**
![Pictogram]

**Signal word**
Danger

**Hazard and precautionary statements**

**Hazard statements**
H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H350 - May cause cancer.

**Precautionary statements**
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust.
P264 - Wash face, hands and any exposed skin 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.
P281 - Use personal protective equipment as required.
P301 + P312 - IF SWALLOWED: call a POISON CENTER or doctor. IF you feel unwell.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 - IF exposed or concerned: Get medical advice.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P330 - Rinse mouth.
P332 + P313 - If skin irritation occurs: Get medical advice.
P337 + P313 - If eye irritation persists: Get medical advice.
P352 - IF ON SKIN: Wash with plenty of soap and water.
P362 - Take off contaminated clothing and wash before reuse.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed P501 - Dispose of contents/ container to an approved waste disposal plant.
P405 - Store locked up.
P501- Dispose of contents and or container to an approved waste disposal plant.

**HMIS Classification**
Health Hazard: 0
Flammability: 1
Physical Hazards: 0

**NFPA Rating**
Health Hazard: 0
Flammability: 1
Physical Hazards: 0

**Potential Health Effects**
Inhalation: May be harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes serious eye irritation.
Ingestion: Acute toxicity. Harmful if swallowed.
Carcinogenicity: May cause cancer.

### Section 3. Composition/Information on Ingredients

**Substances**
Ingredients: Pure Allicin in a solution of Methanol:H₂O:Formic Acid (60:40:0.1). Concentration: 10 mg/ml.

**Formula**
\( \text{C}_6\text{H}_{10}\text{OS}_2 \)

**CAS No.**
539-86-6

**EC No.**

### Section 4. First Aid Measures

**General advice**
If symptoms persist, call physician.

**Eye Contact**
Remove contact lenses. Flush with water for at least 15 minutes. If symptoms persist, call a physician. Immediately flush with plenty of water.

**Skin Contact**
Wash with plenty of water for at least 15 minutes. If skin irritation persists, please call a physician. Wash contaminated clothing before reuse.

**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**
Spray water, alcohol-resistant foam, dry chemical powder, and carbon dioxide.

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

**Unusual Fire Hazards**
Carbon oxides, hydrogen sulfide.

### 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**
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**
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**
Keep container tightly closed in a dry and well-ventilated area. Recommended storage temperature: Store frozen (-80 degree C.) in a dry, dark place in a tightly closed container.

**Hazardous Decomposition Products**
Carbon monoxide, carbon dioxide, and sulfur oxides.

**Other Remarks**
Synthetic. This product ships with dry ice and is extremely heat sensitive.
Section 8. Exposure Controls/Personal Protection

Personal protective equipment

EXPOSURE CONTROLS
Contains no substances with occupational exposure limit values.
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

PERSONAL PROTECTION
Eye 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).
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.

Skin and Body 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.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Colorless liquid.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Boiling Point</th>
<th>Volatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25ºC</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Melting Point</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25ºC</td>
<td>Not available.</td>
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</table>

<table>
<thead>
<tr>
<th>Solubility</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly soluble in water. Miscible with alcohol, ether, benzene.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Water solubility</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly soluble in water.</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>Not available.</td>
<td>Not available.</td>
</tr>
</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
Must be kept cold, unstable at room temperature.

Materials To Avoid
Keep away from direct sunlight and heat.

Hazardous Decomposition Products
Carbon monoxide, carbon dioxide, and sulfur oxides.
### Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>Not available.</td>
</tr>
<tr>
<td>Inhalation LC50</td>
<td>Not available.</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>Subcutaneous (mouse) LD50: 120mg/kg</td>
</tr>
<tr>
<td>Other information on acute toxicity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Specific organ toxicity single exposure (GHS)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Specific organ toxicity repeated exposure (GHS)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Teratogenicity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Potential Health Effects</td>
<td>Inhale: May be harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. Skin: May be harmful if absorbed through skin. Causes skin irritation. Eyes: Causes serious eye irritation. Ingestion: Acute toxicity. Harmful if swallowed. Carcinogenicity: May cause cancer.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Mobility in soil</td>
<td>Not available.</td>
</tr>
<tr>
<td>PBT and vPvB assessment</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
Section 13. Disposal Considerations

Dispose of material according to all federal, state, and local regulations.

Waste Disposal
Offer material to a licensed, professional waste disposal company to dispose of as unused product.

Section 14. Transport Information

DOT (US)
- UN number: 1230
- Class: 3 (6.1)
- Packing Group: II
- Reportable Quantity: 5000 lbs
- Marine pollutant: No
- Poison Inhalation Hazard: No

IATA
- UN number: 1230
- Class: 3 (6.1)
- Packing Group: II

IMDG
- UN number: 1230
- Class: 3 (6.1)
- Packing Group: II
- EMS: No: F-E, S-D

Further Information
Refer to section 3 for information on ingredients.

Section 15. Regulatory Information

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
Acute health hazard

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

Pennsylvania Right To Know Components
- Allicin CAS #: 539-86-6 Date Revision:

New Jersey Right To Know Components
- Allicin CAS #: 539-86-6 Date Revision:

California Prop 65 Components
WARNING! This product does contain chemicals known to the State of California to cause cancer.
- Allicin CAS #: 539-86-6 Date Revision:

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.