Section 1. Product and Company Identification

Product Name: Allicin
Product ID: A4440
Chemical Name: 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

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: 
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, fumes, gas, mist, vapors, spray.
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/eye protection/face protection.
P281 - Use personal protective equipment as required.
P301 + P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician. 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/attention.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P313 - Specific treatment (see supplemental 1st aid instructions on this label).
P330 - Rinse mouth.
P332 + P313 - If skin irritation occurs: Get medical advice/attention.
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.
P405 - Store locked up.
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.
### Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>Ingredients: Pure Allicin in a solution of Methanol:H2O:Formic Acid (60:40:0.1). Concentration: 10 mg/ml.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>$C_6H_{10}OS_2$</td>
</tr>
<tr>
<td>CAS No.</td>
<td>539-86-6</td>
</tr>
<tr>
<td>Formula Wt.</td>
<td>162.27</td>
</tr>
<tr>
<td>EC No.</td>
<td></td>
</tr>
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</table>

### 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 and protective clothing.

**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**

None.
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>
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<tbody>
<tr>
<td>Liquid</td>
<td>Colorless liquid.</td>
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</table>

<table>
<thead>
<tr>
<th>Boiling Point</th>
<th>Volatility</th>
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<tr>
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<td>Not available.</td>
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<table>
<thead>
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<th>Density</th>
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<td>&lt;25°C</td>
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<table>
<thead>
<tr>
<th>Solubility</th>
<th>pH</th>
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</thead>
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<tr>
<td>Slightly soluble in water. Miscible with alcohol, ether, benzene.</td>
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</table>

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

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

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

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

**Oral LD50**
Not available.

**Inhalation LC50**
Not available.

**Dermal LD50**
Subcutaneous (mouse) LD50: 120mg/kg

**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.

**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.

**Reproductive Toxicity**
Not available.

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

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

**Teratogenicity**
Not available.

**Aspiration Hazard**
Not available.

**Synergistic effects**
Not available.

**Additional Information**
Not available.

**Signs and symptoms of exposure**
Chemical physical, and toxicological properties have not been thoroughly investigated.

**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: Harmful if swallowed.
Carcinogenicity: May cause cancer.

Section 12. Ecological Information

**Toxicity**
Not available.

**Mobility in soil**
Not available.

**PBT and vPvB assessment**
Not available.

**Possibility of hazardous reactions**
Not available.

**Conditions to avoid**
Not available.
Section 13. Disposal Considerations
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: 1230
- Class: 3 (6.1)
- Packing Group: II
- Proper Shipping Name: Methanol
- Reportable Quantity: 5000 lbs
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IATA**
- UN Number: 1230
- Class: 3 (6.1)
- Packing Group: II
- Proper shipping name: Methanol

**IMDG**
- UN Number: 1230
- Class: 3 (6.1)
- Packing Group: II
- Proper Shipping Name: Methanol
- 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.