Product ID: A4440
Product Name: Allicin
Chemical Name: Allylthiosulphinic acid allyl ester; Diallyl thiosulfinate

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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

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.
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.
P331 - Specific treatment (see supplemental 1st aid instructions on this label).
P332 - Rinse mouth.
P333 + P334 - If skin irritation occurs: Get medical advice/attention.
P337 + P313 - If eye irritation persists: 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 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

| Substances | Ingredients: Pure Allicin in a solution of Methanol:H2O:Formic Acid (60:40:0.1). Concentration: 10 mg/ml. |
| Formula | C_6H_{10}OS_2 | Formula Wt. | 162.27 |
| 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 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).

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### Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Colorless liquid.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting Point</td>
<td>&lt;25°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>Slightly soluble in water. Miscible with alcohol, ether, benzene.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
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</tr>
<tr>
<td>Upper explosion limit</td>
<td>Not available.</td>
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<tr>
<td>Water solubility</td>
<td>Slightly soluble in water.</td>
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<tr>
<td>Partition coefficient: n-octanol/water</td>
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</tr>
<tr>
<td>Relative vapor density</td>
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</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Volatility</td>
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</tr>
<tr>
<td>Density</td>
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</tr>
<tr>
<td>Ignition temperature</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
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<tr>
<td>Vapor pressure</td>
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<tr>
<td>Odor</td>
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<tr>
<td>Odor Threshold</td>
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</tr>
<tr>
<td>Evaporation rate</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.

**Teratogenicity** Not available.

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

**Specific organ toxicity repeated exposure (GHS)** 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.
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
- 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

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
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.