Lime Sulfur Solution

Safety Data Sheet

1. Identification

1a. Product Name: Lime Sulfur Solution EPA Reg No 61842-30

1b. Other Identification:
- Chemical Family: Inorganic salt solution
- Formula: CaS_x
- EC Pre-Registration #: 05-2118202566-47-0000

1c. Recommended Use of Chemical: Agricultural Industry, Pesticide - Fungicide

1d. Manufacturer: Tessenderlo Kerley Inc.
   2255 N. 44th Street, Suite 300
   Phoenix, Arizona 85008-3279
   (602) 889-8300

1e. Emergency Contact: Tessenderlo Kerley, Inc.
   CHEMTREC
   (800) 877-1737
   (800) 424-9300 (Domestic)
   (703) 527-3887 (International)

2. Hazard(s) Identification

2a. Hazard Classification:
   - Health: Acute Oral toxicity Category 4
   - Acute Dermal toxicity Category 4
   - Acute Inhalation toxicity Category 4
   - Skin corrosion/irritation Category 4
   - Eye damage/irritation Category 2B
   - Physical: None

2b. Signal Word: Warning

Hazard Statement(s):
- Harmful if swallowed
- Harmful in contact with skin
- Harmful if inhaled
- Causes skin irritation
- Causes eye irritation

Symbol(s):

Precautionary Statement(s):
- Wash thoroughly with soap and water after handling.
- If swallowed, get medical attention/contact Poison Control Center immediately.

Lime Sulfur solution
Wear protective gloves/protection clothing when handling product. If contact with the skin: Wash immediately with water for 15 minutes. Avoid breathing product vapors/mist. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Use/store in cool, well ventilated areas. Keep away from any sources of heat or flames. Store totes or small containers out of direct sunlight. Do not allow release to aquatic waterways.

2c.  Unclassified Hazard(S):  Potential aquatic toxicity.

2d. Unknown Toxicity Ingredient:  None

Section 3:  COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Chemical Ingredients (See Section 8 for exposure guidelines)

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Synonym Common Name</th>
<th>CAS No.</th>
<th>EINECS No.</th>
<th>% by Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium polysulfide, CaS₂</td>
<td>Lime sulfur, calcium sulfide</td>
<td>1344-81-6</td>
<td>215-709-2</td>
<td>24 - 29</td>
</tr>
<tr>
<td>Water</td>
<td>Water</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td>71 - 76</td>
</tr>
</tbody>
</table>

Section 4:  FIRST AID MEASURES

4.1 Symptoms/Effects

Acute:  Eye contact may cause eye irritation. Repeated or prolonged skin contact may cause skin irritation. Ingestion may irritate the gastrointestinal tract.

Chronic:  No known chronic effects.

4.2 Eyes:  Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure thorough flushing of the entire area of the eye and lids. Obtain medical attention if irritation occurs.

4.3 Skin:  Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain medical attention if irritation occurs.

4.4 Ingestion:  If victim is conscious, give 2 to 4 glasses of water and induce vomiting by touching finger to back of throat. Obtain medical attention.

4.5 Inhalation:  Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start mouth to mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain medical attention.

Section 5:  FIRE FIGHTING MEASURES

5.1 Flammable Properties:  (See Section 9, for additional flammable properties)
Heating this product will evolve hydrogen sulfide vapors.

5.2 Extinguishing Media:

5.2.1 Suitable Extinguishing Media: Not flammable, use media suitable for combustibles involved in fire.

5.2.2 Unsuitable Extinguishing Media: Not applicable.

5.3 Protection of Firefighters:

5.3.1: Specific hazards arising from the chemical:

Physical hazards: Heating (flames) of closed or sealed containers may cause violent rupture of container due to thermal expansion of compressed gases.

Chemical hazards: Heating causes release of hydrogen sulfide vapors. Vapors are irritating to eyes, skin and respiratory tract.

5.3.2: Protective equipment and precautions for firefighters: Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear. Keep containers/storage vessels in fire area cooled with water spray.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

Use personal protective equipment specified in Section 8. Isolate the release area and deny entry to unnecessary, unprotected and untrained personnel.

6.2 Environmental Precautions

This product is not a water pollutant in accordance with the Clean water Act, but should be kept out of "waters of the US" because of potential aquatic toxicity (See Section 12).

6.3 Methods of Containment

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent.

Large releases: Shut off release if safe to do so. Dike spill area with earth, sand or other inert absorbent to prevent runoff into surface waterways (potential aquatic toxicity).

6.4 Method for Cleanup

Small release: For small areas shovel up absorbed material and place in drums for disposal as a chemical waste.

Large release: Recover as much of the spilled product using portable pump and hoses. Treat remaining material as a small release (above).

Section 7: HANDLING and STORAGE

7.1 Handling: Avoid contact with eyes. Use only in a well ventilated area. Wash thoroughly after handling. Avoid prolonged or repeated breathing of vapors. Avoid prolonged or repeated contact with the skin.
7.2 Storage: Store in well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures. (See Section 10.5, for materials of construction)

Section 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Exposure Guidelines: OSHA ACGIH

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>STEL</th>
<th>TLV</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>20 ppm (ceiling)</td>
<td>10 ppm (ceiling)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Engineering Controls: Use adequate exhaust ventilation to prevent inhalation of product vapors.

8.3. Personnel Protective Equipment (PPE)

8.3.1 Eye/Face Protection: Chemical goggles and a full face shield.

8.3.2 Skin Protection: Neoprene rubber gloves and apron should be worn to prevent repeated or prolonged contact with the liquid. Wash contaminated clothing prior to reuse.

8.3.3 Respiratory Protection: Have self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) available in case of spillage or equipment failure.

General Hygiene Considerations: Common good industrial hygiene practices should be followed, such as, washing thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL and CHEMICAL PROPERTIES

9.1 Appearance/State/odor: Ruby-red/liquid/strong odor of rotten eggs.
9.2 Odor Threshold: 0.13 ppm faint, but easily noticeable at 0.77 ppm.
9.3 pH : 11.5 – 11.7
9.4 Freezing Point: Not determined.
9.5 Boiling Point: Not determined.
9.6 Flash Point: Not applicable.
9.7 Evaporation Rate: Not determined.
9.8 Flammability: Not applicable.
9.9 Flammability Limits: Not applicable.
9.10 Vapor Pressure: None at ambient temperatures.
9.11 Vapor Density: Not determined
9.12 Specific gravity: 1.27 (10.6 lbs/gal)
9.14 Partition Coefficient: Data not available.
9.15 Auto-ignition Temperature: Not applicable.
9.16 Decomposition Temperature: Not determined.
9.17 Viscosity: 2.95 cSt @ 20°C, 2.5 cSt @ 30°C.

Section 10: STABILITY and REACTIVITY

10.1 Reactivity: Strong oxidizers and acids

10.2 Chemical Stability: This is a stable product under conditions of ambient temperatures and pressure.

10.3 Possibility of hazardous reactions: Interaction with strong oxidizers, acids or acidic materials.

Lime Sulfur solution
10.4 Conditions to Avoid: Interaction with strong oxidizers or acidic materials (evolution of hydrogen sulfide vapors).

10.5 Incompatible: Strong oxidizers can cause explosive mixtures if heated to dryness. Acids, acidic materials and dilution with water will cause the release of highly toxic hydrogen sulfide vapors.

10.6 Hazardous Decomposition Products: Hydrogen sulfide and oxides of sulfur.

Section 11: TOXICOLOGICAL INFORMATION

11.1 Oral: Oral Rat LD$_{50}$: 820 mg/kg
11.2 Dermal: Dermal Rabbit LD$_{50}$: > 2,000 mg/kg.
11.3 Inhalation: INH-Rat LC$_{50}$: 3.6 mg/L (4 hr. exposure)
11.4 Chronic/Carcinogenicity: Not listed in NTP, IARC or by OSHA.
11.5 Teratology: Data not available
11.6 Reproduction: Data not available
11.7 Mutagenicity: Data not available

Section 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity Green Algae, EC$_{50}$: 16.4 mg/l
Water Flea, EC$_{50}$: 13.7 mg/l.
Bluegill, LC$_{50}$: 52.9 mg/l.
Flathead Minnow, LC$_{50}$: 42.9 mg/l
Rainbow trout, LC$_{50}$: 8.8 mg/l.

12.2 Persistence & Degradability No data is available.
12.3 Bioaccumulative potential This product is not bioaccumulative.
12.4 Mobility in Soil No data available.
12.5 Other Adverse Effects None

Section 13: DISPOSAL CONSIDERATIONS

If this product as supplied becomes a waste, it should be checked for reactive sulfides prior to disposal. Consult state and local regulations for different or more restrictive disposal regulations.
**Section 14: TRANSPORT INFORMATION**

14.1 Basic Shipping Description

14.1.1 Proper Shipping Name: *(Not regulated by DOT)*
14.1.2 Hazard Class(s): NA
14.1.3 Identification Number: NA
14.1.4 Packing Group: NA
14.1.5 Hazardous Substance: No
14.1.6 Marine Pollutant: No

14.2 Additional Information

14.2.1 Other DOT Requirements

14.2.1.1 Reportable Quantity: No
14.2.1.2 Placard(s): NA
14.2.1.3 Label(s): NA

14.2.2 USCG Classification: Not determined.

14.2.3 International Transportation

14.2.3.1 IMO: Environmentally hazardous substance, liquid, n.o.s. (calcium polysulfide)
14.2.3.2 IATA: Non-hazardous under IATA regulations.
14.2.3.3 TDG (Canada): Not regulated – See US DOT Section 14.1.1.
14.2.3.4 ADR (Europe): Environmentally hazardous substance, liquid, n.o.s. (calcium polysulfide)
14.2.3.5 ADG (Australia): Environmentally hazardous substance, liquid, n.o.s. (calcium polysulfide)

14.2.4 Emergency Response Guide: Not applicable

14.2.5 ERAP - Canada: Not applicable

14.2.6 Special Precautions: Not applicable

**Section 15: REGULATORY INFORMATION**

15.1 US Federal Regulations

15.1.1 OSHA: This product meets the criteria of the Federal OSHA Hazard communication Standard (29 CFR 1910.1200).
15.1.2 TSCA: Product is contained in USEPA Toxic Substance Control Act Inventory
15.1.3 CERLA: Reportable Quantity – Not applicable
15.1.4 SARA Title III

15.1.4.1 Extremely Hazardous Substance (EHS): Not Applicable
15.1.4.2 Section 312 (Tier II) ratings:
- Immediate (acute): Yes
- Fire: No
- Sudden release: No
- Reactivity: No
- Delayed (chronic): No

15.1.4.3 Section 313 (FORM R): Not applicable

15.1.5 RCRA (Resource Conservation & Recovery Act) Status: Not Applicable

15.1.6 CAA Hazardous Air Pollutant (HAP): Not Applicable

15.2 international Regulations

15.2.1 Canada
- WHIMIS: Not determined
- DSL/NDSL: Listed in NDSL, Record No. 28636

NFPA: Health - 2  Flammability - 0  Reactivity - 0

Section 16: OTHER INFORMATION

REVISIONS: The entire SDS was reformatted to comply with ANSI Standard Z400.1-2004, and OSHA Hazard Communications Act (GHS), by Tessenderlo Kerley, Inc., Regulatory Affairs.

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