Safety Data Sheet

Lime Sulfur Solution®

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03
Canadian Workplace Hazardous Material Information System (WHMIS) 2015
Mexico NOM-018-STPS-2000; NOM-018-STPS-2015
GHS (Globally Harmonized System)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name Lime Sulfur Solution®

Pure substance/mixture Substance

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Pesticide Fungicide

Uses advised against None known

1.3. Details of the supplier of the safety data sheet

Manufacturer
Miller Chemical and Fertilizer, LLC
120 Radio Rd
Hanover, PA 17331
Tel.: 717-632-8921
Fax.: 717-646-1104

Internet http://www.millerchemical.com

E-mail info@millerchemical.com

1.4. Emergency telephone number

CHEMTREC: +1 800 424 9300 or International +1 703 527 3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

GHS Classification
Acute tox. Oral, Cat. 4; H302
Skin Irritant Category 2; H315
Skin Sensitization Category 1; H317
Eye irritation Cat. 2 H319
Acute tox. inhalation, Cat. 4; H332
STOT SE 3; H335

Aquatic Acute Category 2; H401

2.2. Label elements

Symbols/Pictograms

Signal Word Warning

Hazard Statements

H302 + H332 - Harmful if swallowed or inhaled.
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H401 - Toxic to aquatic life

Precautionary Statements

Prevention

P261 - Avoid breathing mists/spray.
P264 - Wash hands thoroughly after handling
P265 - Do not touch eyes.
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P102 - Keep out of reach of children

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical help. (P305 +P351+P338+P337+P317)
IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical help. Specific treatment: See Section 4 for additional medical information. Take off contaminated clothing and wash it before reuse. (P302+P352+P333+P317+P321+P362+P364)
IF SWALLOWED: Get medical help. Rinse mouth. (P301+P317+P330)
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help. (P304+P340+P317)

Storage

P403 - Store in a well-ventilated place
P405 - Store locked up

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Additional information

Do not mix Lime-Sulfur Solution Agricultural Fungicide with acids or phosphate fertilizer products. Deadly and potentially extremely flammable hydrogen sulfide gas may be emitted. Contact with acids liberates toxic gas.

Hazards not otherwise classified (HNOC)

None known

SECTION 3: Composition/information on ingredients

Pure substance/mixture Mixture

Chemical Name	CAS NUMBER:	Weight-%
Calcium Polysulfide	1344-81-6	29

Additional information Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: First aid measures

4.1. Description of first aid measures

General Advice Have the product container or label with you when calling a poison control center or doctor, or going fortreatment. For medical emergencies involving this product, call toll free 1-866-374-1975. See Label forAdditional Precautions and Directions for Use.

Eye Contact IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contactlenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctorfor treatment advice.

Skin Contact IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for15-20 minutes. Call a poison control center or doctor for treatment advice.

Ingestion IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip aglass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center ordoctor. Do not give anything by mouth to an unconscious person.

Inhalation IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificialrespiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for furthertreatment advice.

4.2. Most important symptoms and effects, both acute and delayed None known.

4.3. Indication of any immediate medical attention and special treatment needed NOTE TO PHYSICIANProbable mucosal damage may contraindicate gastric lavage.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray (fog). Dry chemical. Foam. Carbon dioxide (CO2). Fight larger fireswith water spray or alcohol resistant foam.

Unsuitable Extinguishing Media
None known.

5.2. Special hazards arising from the substance or mixture

When heated or diluted, hydrogen sulfide vapors will evolve. This gas may form explosive mixtures with air. Keep containers/storage vessels in fire area cooled with water spray.

5.3. Advice for firefighters

Special protective equipment for firefighters
Firefighters should be equipped with self-contained positive pressure breathingapparatus and full bunker gear.

Fire-fighting measures
Evacuate personnel and keep upwind of fire. If area is heavily exposed to fireand if conditions permit, let fire burn itself out since water may increase the area contaminated. Do notallow run-off from firefighting to enter drains or water courses. Fire residues and contaminated fireextinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures Isolate area and keep unnecessary and unprotected personnel from entering.Wear suitable personal protective clothing and equipment as described in Section 8 of this document.Ensure adequate ventilation.

For non-emergency personnel Keep unauthorized personnel away.

For emergency responders Keep unauthorized personnel away. Use personal protection recommended in Section 8.

6.2. Environmental precautions Prevent material from entering public sewer systems or any waterways. Donot flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affectedarea should be removed and placed in an appropriate container for disposal.

6.3. Methods and material for containment and cleaning up Dike spill using suitable absorbent or impervious materials such as sand or clay. Collectand contain contaminated absorbent and place in an appropriate container for disposal. Pump any freeliquid into an appropriate closed container and decontaminate tools and equipment following cleanup.Collect washings for disposal.

6.4. Reference to other sections See Section 8 for exposure controls and personal protection. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Do not get in eyes, on skin or on clothing. Wash thoroughly with soap and water after handlingand before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and washcontaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities Keep pesticide in original container. Store product in a secure locked place, inaccessible tochildren, pets and livestock. DO NOT put concentrate or dilute into food or drink containers. Keep containerin the shade. For help with any spill, leak, fire, or exposure involving this material call day or nightCHEMTREC (800) 424-9300.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits No information available

Biological Limit Values No information available

8.2. Exposure controls

Engineering Measures Facilities storing or utilizing this material should be equipped with an eyewash

station and a safety shower.

Personal protective equipment

Eye/Face Protection	Chemical goggles or face shield with safety glasses.
Skin and Body Protection	Wear suitable protective clothing. Wear coveralls over long-sleeved shirt and long pants, chemical resistant footwear plus socks, chemical resistant headgear for overhead exposure, chemical resistant apron when mixing, loading or cleaning equipment or spills.
Hand Protection	For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn. Chemical resistant gloves (barrier laminate; butyl, nitrile, neoprene or natural rubber > 14 mils; polyethylene; polyvinyl chloride (PVC) > 14 mils; Viton >14 mils)
Respiratory Protection	In case of inadequate ventilation wear respiratory protection.
Environmental Exposure Controls	Dispose of in accordance with local regulations.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	
Physical State	Ruby red Liquid
Odor	Strong odor of rotten eggs
pH	10.8
Melting point / Freezing point	Not applicable
Boiling Point / Boiling Range	Not determined
Freezing Point	Not determined
Flash Point	Not determined
Evaporation Rate	Not determined
Flammability (solid, gas)	Not determined
Vapor Pressure	Not determined
Vapor Density	Not determined
Density	10.59 lbs./gal
Water Solubility	Dissolves with precipitation of elemental sulfur
Partition coefficient	No information available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No information available.
Kinematic viscosity	No data available
Oxidizing Properties	Not applicable
Particle Size	No information available
Percent Volatile	Not determined
VOC Content (%)	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No data available

9.2.2. Other safety characteristics

Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity	Strong oxidizers and acids
10.2. Chemical stability	Stable to boiling point, will lose water above this temperature
10.3. Possibility of hazardous reactions	No specific hazard known
10.4. Conditions to avoid	Exposure to extreme heat or open flames.
10.5. Incompatible materials	Strong oxidizers such as nitrates, nitrites or chlorates can cause explosive mixtures if heated to dryness. Acids, acidic materials or dilution with water will cause the release of hydrogen sulfide, a highly toxic gas.
10.6. Hazardous decomposition products	Heating this product will evolve hydrogen sulfide vapors.Continued heating will also cause oxides of sulfur to bereleased.

SECTION 11: Toxicological information

General Information Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Information on Likely Routes of Exposure

Inhalation Avoid inhalation of the product

Skin Avoid prolonged or repeated contact with skin

Eyes Causes serious eye irritation

Ingestion Avoid ingestion

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Calcium Polysulfide

Group 2A - Probably Carcinogenic to Humans Monograph 53 [1991]

Acute Toxicity ORAL TOXICITY (rat LD50): 820 mg/kg
DERMAL TOXICITY (rabbit LD50): > 2,000 mg/kg
INHALATION TOXICITY (rat LC50): 3.1 mg/L (4 hours) (female)

Serious eye damage/eye irritation Causes serious eye irritation

Skin Corrosion/Irritation Causes skin irritation

Skin Sensitization May cause an allergic skin reaction

Mutagenicity Data not available

Reproductive Toxicity There is no developmental or reproductive concern at dose levels that exceed the limit dose.

Carcinogenicity EPA: Not likely to pose carcinogenic hazard to humans
ACGIH: Not Listed. NTP: Not Listed
IARC: Not Listed. OSHA: Not Listed

Specific target organ toxicity - Single exposure May cause respiratory irritation

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors

11.2.2. Other information Not applicable

SECTION 12: Ecological information

Calcium Polysulfide

Aquatic toxicity	AQUATIC TOXICITY - Chronic Aquatic Invertebrate: 11.4 mg/L
96-Hour LC50	Bluegill sunfish: 14.1 mg/L Rainbow trout, Oncorhynchus mykiss: 2.4 mg/L Fathead Minnow: 9.2 mg/l

12.2. Persistence and degradability Calcium polysulfide is expected to rapidly dissociate in the presence of any moisture to form calcium cation and elemental sulfur.

12.3. Bioaccumulative potential Does not bioaccumulate

12.4. Mobility in soil In the soil system, the modest amounts of calcium and sulfur that result from the use of polysulfide are not believed to be significant when compared to natural background levels.

12.5. Results of PBT and vPvB assessment No data available

12.6. Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors

12.7. Other Adverse Effects None known

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal Methods PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your state Pesticide or Environmental Control Agency or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Nonrefillable and refillable containers. See container label for container handling and disposal instructions. Dispose of contents /container to local and national hazardous waste disposal regulations.

Contaminated Packaging Product residue may remain in empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

Mode of Transportation (Road, Water, Air, Rail)

DOT Not regulated

ADR	Not regulated
RID	Not regulated
ADN	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated
ICAO	Not regulated

14.1. UN number or ID number None

14.2. UN proper shipping name None

14.3. Transport hazard class(es) None

14.4. Packing group None

14.5. Environmental hazards No

14.6. Special precautions for user Not applicable

14.7. Maritime transport in bulk according to IMO instruments
Not applicable

SECTION 15: Regulatory information

Global Inventories

Pure substance/mixture Mixture

Chemical Name	CAS Number	Canada (DSL)	Mexico	TSCA: United States
Calcium Polysulfide	1344-81-6	Y	N	A

Y: Complies ; A: Active ; - / N: Exempt / Not Listed

EPA

CERCLA
Not listed

SARA 311/312 Hazardous Categorization
Immediate (Acute), Delayed (Chronic)

CWA (Clean Water Act)
Not regulated

CAA (Clean Air Act)
Not regulated

U.S. State Right-to-Know Regulations

Chemical Name	CAS Number	California Proposition 65	Massachusetts	Minnesota	New Jersey	Pennsylvania
Calcium Polysulfide	1344-81-6	N	N	N	N	N

Y: Listed ; N: Not Listed

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
This product does not contain any Proposition 65 chemicals

CANADA

WHMIS
This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

SECTION 16: Other information

Prepared by	Miller Chemical and Fertilizer, A Huber Company, Global Regulatory Affairs regulatory.affairs@huber.com
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Reason for Version	Revised in entirety. OSHA (Occupational Safety and Health Administration of the US Department of Labor).
Abbreviations and acronyms	OSHA (Occupational Safety and Health Administration of the US Department of Labor) WHMIS (Workplace Hazardous Materials Information System) GHS (Globally Harmonized System) IARC (International Agency for Research on Cancer) PPE (Personal Protection Equipment) TWA (Time-Weighted Average) TLV® (Threshold Limit Value) STEL (Short Term Exposure Limit) RQ (Reportable Quantity) (RQ/% in mixture) DOT (Department of Transportation) TDG (Transport of Dangerous Goods) Canada IATA (International Air Transport Association) IMDG (International Maritime Dangerous Goods) ICAO (International Civil Aviation Organization)
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet