



Material Safety Data Sheet

Lime Sulfur Solution

MSDS Number 77BSP2 (Revised: 1/172008)

6 Pages

Section 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

- 1.1 Product Name** **Lime Sulfur Solution**
Chemical Family Inorganic salt solution
Synonyms Calcium polysulfide, CaPS, calcium sulfide.
Formula CaS_x
- 1.2 Manufacturer** Tessenderlo Kerley Inc.
2255 N. 44th Street, Suite 300
Phoenix, Arizona 85008-3279
Information (602) 889-8300
- 1.3 Emergency Contact** (800) 877-1737 (Tessenderlo Kerley)
(800) 424-9300 (CHEMTREC)

Section 2: COMPOSITION, INFORMATION ON INGREDIENTS

- 2.1 Chemical Ingredients (% by wt.)**
- | | | |
|---------------------|-----------------|-----|
| Calcium polysulfide | CAS #:1344-81-6 | 29% |
| Inerts | | 71% |

(See Section 8 for exposure guidelines)

Section 3: HAZARDS IDENTIFICATION
--

NFPA: **Health - 2** **Flammability - 0** **Reactivity - 0**

EMERGENCY OVERVIEW

Warning:

Avoid inhalation of product fumes (hydrogen sulfide) near openings on storage container. Release of the product to the environment may cause the evolution of highly toxic hydrogen sulfide vapors. Product solution is alkaline and may cause irritation to the skin. Eye contact will cause eye irritation and possible corneal damage. Ingestion will result in irritation of tissues and the release of hydrogen sulfide in the gastrointestinal tract.

Section	3:	HAZARDS IDENTIFICATION (Cont.)
----------------	-----------	---------------------------------------

3.1 POTENTIAL HEALTH EFFECTS

EYE: Contact with the eyes by product mist or solution will cause irritation and a burning sensation. Eye contact may result in severe corneal injury.

SKIN CONTACT: Contact with product mist or solution will cause skin irritation and may result in corrosion of the skin.

SKIN ABSORPTION: Absorption is unlikely to occur.

INGESTION: Ingestion of product solution will cause irritation and corrosion of the gastrointestinal tract to include nausea, vomiting and diarrhea. Contact with stomach acid will cause highly toxic hydrogen sulfide to evolve.

INHALATION: Inhalation of product vapors (hydrogen sulfide) may cause dizziness and unconsciousness possibly resulting in serious falls from elevated positions..

CHRONIC EFFECTS/CARCINOGENICITY: Not listed as a carcinogen by NTP, IARC or OSHA.

Section	4:	FIRST AID MEASURES
----------------	-----------	---------------------------

4.1 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 immediate medical attention.

4.2 SKIN: Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain immediate medical attention.

4.3 INGESTION: DO NOT INDUCE VOMITING. If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain immediate medical attention.

4.4 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 immediate medical attention.

Section	5:	FIRE FIGHTING MEASURES
----------------	-----------	-------------------------------

5.1 FLAMMABLE PROPERTIES

FLASH POINT: Not flammable (See Section 5.4)

METHOD USED: NA

5.2 FLAMMABLE LIMITS **H₂S** **LFL:** 4% **UFL:** 44%

5.3 EXTINGUISHING MEDIA: Water spray or foam or as appropriate for combustibles involved in fire.

Section	5:	FIRE FIGHTING MEASURES (Cont.)
----------------	-----------	---------------------------------------

5.4 FIRE & EXPLOSIVE HAZARDS: When heated or diluted, hydrogen sulfide vapors will evolve. This gas may form explosive mixtures with air. (See Section 5.2) Keep containers/storage vessels in fire area cooled with water spray.

5.5 FIRE FIGHTING EQUIPMENT: Because of the possible presence of toxic gases and the irritating nature of the product, wear self-contained breathing apparatus, positive pressure, (MSHA/NIOSH approved or equivalent) and full protective gear.

Section	6:	ACCIDENTAL RELEASE MEASURES
----------------	-----------	------------------------------------

6.1 Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Released material may contain residual sulfides. Spray with weak (~5%) hydrogen peroxide to oxidize sulfides.

6.2 Large releases: Confine area to qualified personnel. Wear proper protective equipment. Shut off release if safe to do so. Dike spill area to prevent runoff into sewers, drains (possible toxic or explosive mixtures) or surface waterways (potential aquatic toxicity). Spray product vapors with fine water spray or mist. Recover as much of the solution as possible. Treat remaining material as a small release (above).

Section	7:	HANDLING and STORAGE
----------------	-----------	-----------------------------

7.1 Handling: Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Dilute only in enclosed containers. Use in a well ventilated area. Wash thoroughly after handling.

7.2 Storage: Store in well ventilated areas in enclosed containers. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote, drums and small containers out of direct sunlight at moderate temperatures [$<90^{\circ}\text{F}$ (32°C)]. (See Section 10.4 for materials of construction)

Section	8:	EXPOSURE CONTROLS, PERSONAL PROTECTION
----------------	-----------	---

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

8.2 SKIN PROTECTION: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothing prior to reuse. Contaminated shoes cannot be cleaned and should be discarded

8.3 EYE PROTECTION: Chemical goggles and a full face shield.

8.4 EXPOSURE GUIDELINES:

	OSHA		ACGIH	
	TWA	STEL	TLV	STEL
Hydrogen sulfide	20 ppm (ceiling)		10 ppm (ceiling)	

8.5 ENGINEERING CONTROLS: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9: PHYSICAL and CHEMICAL PROPERTIES

9.1 APPEARANCE:	Ruby red liquid
9.2 ODOR:	Strong odor of rotten eggs
9.3 BOILING POINT:	Not determined
9.4 VAPOR PRESSURE:	Not determined (Believed to be minimal)
9.5 VAPOR DENSITY:	Not determined
9.6 SOLUBILITY IN WATER:	Dissolves with precipitation of elemental sulfur.
9.7 SPECIFIC GRAVITY:	1.273 (10.6 lbs/gal)
9.8 FREEZING POINT:	Not determined
9.9 pH:	11.5- 11.7
9.10 VOLATILE:	Not applicable

Section 10: STABILITY and REACTIVITY

10.1 STABILITY: This is a stable material

10.2 HAZARDOUS POLYMERIZATION: Will not occur.

10.3 HAZARDOUS DECOMPOSITION PRODUCTS: Heating this product will evolve hydrogen sulfide vapors. Continued heating will also cause oxides of sulfur to be released.

10.4 INCOMPATIBILITY: 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.

Section 11: TOXICOLOGICAL INFORMATION

11.1 ORAL: Oral Rat LD₅₀ : 820 mg/kg

11.2 DERMAL: Dermal Rabbit LD₅₀ : 2,000 mg/kg

11.3 INHALATION: INH-Rat LC₅₀: 3.6 mg/L (4 Hr. Exposure)

11.4 CHRONIC/CARCINOGENICITY: No evidence available

11.5 TERATOLOGY: Data not available

11.6 REPRODUCTION: Data not available

11.7 MUTAGENICITY: Data not available

Section 12: ECOLOGICAL INFORMATION

No data available.

Section	13:	DISPOSAL CONSIDERATIONS
----------------	------------	--------------------------------

If released to the environment for other than its intended purpose, this product should be checked to see it meets the criteria of a reactive sulfides D003, Reactive waste.

Section	14:	TRANSPORT INFORMATION
----------------	------------	------------------------------

14.1 DOT Shipping Name:	Calcium Polysulfide solution
14.2 DOT Hazard Class:	NA
14.3 UN/NA Number:	NA
14.4 Packing Group:	NA
14.5 DOT Placard:	NA
14.6 DOT Label(s):	NA
14.7 IMO Shipping Name:	Not Determined
14.8 RQ (Reportable Quantity):	NA
14.9 RR STCC Number:	Not Determined

Section	15:	REGULATORY INFORMATION
----------------	------------	-------------------------------

15.1 OSHA:	This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.		
15.2 SARA TITLE III:	a.	EHS (Extremely Hazardous Substance) List:	No
	b.	Section 311/312, (Tier I,II) Categories:	Immediate (acute) Yes Fire No Sudden release No Reactivity Yes Delayed (chronic) No
	c.	Section 313 (Toxic Release Reporting-Form R):	No
		<u>Chemical Name</u> <u>CAS Number</u>	<u>Concentration</u>
	d.	TPQ (Threshold Planning Quantity):	No
15.3 CERCLA/SUPERFUND:		RQ (Reportable Quantity)	No
15.4 TSCA (Toxic Substance Control Act) Inventory List:			Yes

Section 15: REGULATORY INFORMATION (Cont.)

15.5 RCRA (Resource Conservation and Recovery Act) Status:	Possible D003 (See Section 13)
15.6 WHMIS (Canada) Hazard Classification:	NA
15.7 DOT Hazardous Material: (See Section 14)	No
15.8 CAA Hazardous Air Pollutant (HAP)	No

Section 16: OTHER INFORMATION

REVISIONS: The entire MSDS was reformatted to comply to ANSI Standard Z400.1-1993, by Technical Services-Tessenderlo Kerley, Inc.

THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND OSHA, ANSI, NFPA, DOT, ERG, AND CHRIS. IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THE ADOPTION OF NECESSARY SAFETY PRECAUTIONS. WE RESERVE THE RIGHT TO REVISE MATERIAL SAFETY DATA SHEETS PERIODICALLY AS NEW INFORMATION BECOMES AVAILABLE.