



Lime Sulfur (Calcium Polysulfide)

Material Safety Data Sheet

SECTION 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Manufactured by: Bonsai Jack Po Box 2054 Lehigh Acres, FL 33970 Product Name: Bonsai Jack Lime Sulfur	Emergency Telephone Number 786-262-3135
	Telephone Number for Information 1-786-262-3135
	Prepared 3-8-13

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

Component	(% by wt.)	CAS #	OSHA LIMITS		ACGIH LIMITS	
			PEL(TW A)	STEL	TLV	STEL
Calcium Polysulfide (CaS _x)	24-44	1344-81-6	Not defined	Not defined	Not defined	Not defined
Hydrogen Sulfide(H ₂ S)	trace	7783-06-4	20 ppm (ceiling)	50 pPm (10 min in 8-hr work shift)	10 ppm	15 ppm
Other proprietary components may be used to manufacture this product.						

SECTION 3: HAZARDS IDENTIFICATION

NFPA Rating (Toxicity or Hazardous)

HEALTH: 2 REACTIVITY:0 FLAMMABILITY: 0 ENVIRONMENT: 1

0=insignificant

1=Slightly

2=Moderately

3=High

4=Extreme

Emergency Overview:

This material is hazardous to humans and domestic animals. The vapor or mist may cause irreversible eye irritation and possible corneal damage. The vapor and liquid, if ingested or absorbed through skin, may cause respiratory tract or skin irritation. It may give off highly toxic and extremely flammable hydrogen sulfide gas if mixed with chemicals containing acids or phosphate.

Inhalation: Inhalation of vapors or mists (hydrogen sulfide) can be irritating to nasal passage, throat and lungs. Symptoms may include coughing, chest discomfort, dizziness, lightheadedness, loss of sense of smell and unconsciousness.

Eye: Exposure of vapor or mists can cause irreversible eye irritation and possible damage. symptoms may include excessive tearing, swelling, redness and pain. Direct contact with the eyes by liquid may cause corneal damage and visual impairment if not treated immediately

Skin: contact or absorption of vapor or liquid can cause skin irritation and/or burns. Symptoms may include swelling, redness, itching and pain. It is unlikely that this product will be absorbed through the skin in excessive or harmful amounts.

Ingestion: Ingestion of liquid can cause irritation and corrosion of the gastrointestinal tract. Ingestion and contact with gastric fluids will cause liberation of highly toxic hydrogen sulfide gas, which can be absorbed into the tissues. symptoms may include nausea, vomiting, decreased respirations and convulsions'

Chronic Effects/Carcinogenicity: Not listed as a carcinogen by NTP, IARC or OSHA. The chronic skin exposure may include dermatitis and long term irritation of skin.

SECTION 4: FIRST AID MEASURES

Remove the patient from immediate source of exposure and assure that the individual is breathing' If not breathing, use artificial respiration. Get medical attention.

Inhalation: Remove victim to fresh air. If not breathing, administer cardiopulmonary resuscitation or artificial respiration. If breathing is difficult or irritation develops, get medical attention' Do not use mouth to mouth method if victim ingested or inhaled the material.

Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Lift upper and lower lids and rinse under them with copious amounts of water. Get medical attention.

Skin: wash all affected areas with plenty of soap and water while under a safety shower for at least 15 minutes, while removing contaminated clothing and shoes. Do not attempt to neutralize with chemical agents. Seek medical attention immediately. Discard any contaminated clothing and shoes.

SECTION 4: FIRST AID MEASURES (Cont.)

Ingestion: Drink promptly a large quantity of milk, egg white, or gelatin solution or if these are not available, large quantities of water. Get medical attention. Do not induce vomiting. (See Note to Physician below).

Note to Physician: probable mucosal damage may contraindicate gastric lavage. For severe hydrogen sulfide poisoning, successful treatment has involved initial inhalation of amyl nitrate pearls for 15 to 30 seconds of each minute until 10 mls of a 3% solution of sodium nitrite can be administered intravenously at 2.5 to 5 mls per minute. The nitrate-induced methemoglobin is thought to bind the toxic hydro-sulfide ion.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point:	Not flammable
Test Method:	Not applicable
Flammable Limits:	LFL:4% UFL:44% (H ₂ S in air)
Auto ignition Temperature:	Not applicable
Flammability Classification:	None
Known Hazardous Products of Combustion:	Not known
Fire & Explosive Hazards:	This material, when heated or diluted will evolve hydrogen sulfide gas. This gas may form explosive mixtures with air. Keep containers/storage vessels in fire area cooled with water spray.
Extinguishing Media:	CO ₂ dry chemical foam or water spray
Fire Fighting Equipment:	Wear self-contained breathing apparatus with positive pressure and full protective gear

Special Fire fighting procedure: smoke from fires may present unusual hazards; avoid breathing smoke. Avoid contact with fall out and runoff. Minimize amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment' contain and isolate runoff and debris for proper disposal. Prevent unauthorized entry to fire area'

Persons who have been exposed to contaminated smoke should be immediately relieved of duty and checked for symptoms of poisoning. These should not be mistaken for heat exhaustion or smoke inhalation See Sections 3 and 11 for symptoms of poisoning, first aid procedures and notes to physician

SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill: Wear recommended protective equipment and clothing. Shut of release if safe to do so. Dike spill area to prevent runoff into sewers, drains or surface waterways. Do not use acidic cleaning materials. Pick up the bulk of liquid using pumps or a vacuum truck or absorb the liquid in sand or a commercial absorbent. Place the liquid in approved containers for recovery and disposal. Wherever absorbent is applied, use a stiff broom to mix thoroughly. Sweep up and place in a disposable container. Scrub contaminated area with detergent soap and water using a stiff broom.

Water Spill: Wear recommended protective equipment and clothing. Stop or divert water flow. Dike contaminated water and remove for disposal and/or treatment. As appropriate, notify all downstream users of possible contamination'

SECTION 7: HANDLING and STORAGE

Storage: store this material under ambient temperature and pressure in a cool, dry, well-ventilated area away from incompatible materials and products and in properly designed vessels. Do not heat drums with any welding equipment as explosion may occur. Avoid breathing gas' Do not get in eyes, on skin or on clothing. Do not swallow this material.

Handling: Handle in enclosed container to avoid breathing. Dilute only in enclosed containers' Use in a well-ventilated area. Wash thoroughly after handling

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Protective equipment should be used during the following procedures:

- Manufacture or formulation of this product.
- Repair and maintenance of contaminated equipment
- Clean up of leaks and spills.
- Any other activity that may result in hazardous exposure

Respiratory: Use a NIOSH/MSHA approved full-face respirator with H₂S gas cartridge. Use positive pressure self-contained breathing apparatus for emergency or other conditions requiring a higher level of protection

Ventilation: Use local exhaust as needed to maintain airborne exposure below exposure limits (H₂S TLV 10ppm as per ACGIH Limits)'

Skin: Full-body chemical suit, chemical-resistant gloves and boots should be worn to prevent liquid contact. Wash contaminated clothing prior to reuse. Contaminated boots cannot be cleaned and should be discarded

Eyes: Chemical worker's goggles and full-face shield. As a general rule, do not wear contact lenses when handling'

Other: Maintain a sink, safety shower and eyewash fountain in the work area. Have oxygen readily available.

Engineering controls: Use adequate ventilation to prevent inhalation of vapors. Maintain eyewash/safety shower in areas where chemical is handled.

SECTION 9: PHYSICAL and CHEMICAL PROPERTIES

Appearance:	Deep red/orange liquid.
Odor:	Pungent odor of rotten eggs.
Molecular Formula:	CaS _x
Molecular Weight:	Not determined
Specific Gravity:	1.23 to 1.28
pH:	10.0 - 12.0.
Vapor Pressure:	Not determined (believed to be minimal)
Vapor Density (Air=1):	Not determined.
Boiling Point:	Not determined.
Freezing Point:	Not determined.
Water Solubility:	Soluble.

SECTION 9: PHYSICAL and CHEMICAL PROPERTIES (Cont.)

Evaporation Rate:	Not determined.
Viscosity:	Not determined.
% Volatile by Volume:	Not determined.
Octanol/Water Partition Coefficient:	Not determined.
Saturated Vapor Concentration:	Not determined.

SECTION 10: STABILITY and REACTIVITY

Stability: Stable to boiling point; will lose water above this temperature.

Conditions to Avoid: Elevated temperatures can cause containers to burst'

Incompatibility: Avoid contact with oxidizers such as nitrates, nitrites or chlorates as it may form explosive mixture if heated to dryness' Avoid contact with acids, acidic materials or dilatation with water as it will generate hydrogen sulfide, which is highly toxic gas and is explosive at critical concentration.

Hazardous Decomposition Products: Heating this material will evolve hydrogen sulphide. Continued heating cause oxides of sulfur to be formed and released. Incomplete combustion or thermal decomposition can produce carbon monoxide, oxyhydrocarbon derivatives and sulfur hydrogen sulfide

Hazardous Polymerization: None.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Effects:

Ingestion: This material decomposes in the digestive tract to release sulfur and hydrogensulfide (H₂S). Signs and symptoms of toxicity may include headache, nausea, vomiting, drowsiness, amnesia, tremors, depressed respiration, convulsions, and cyanosis and death due to respiratory paralysis. Severe irritation of the digestive tract may also occur. LD₅₀s (rat): (M)820 mg/kg; (F)820 mg/kg

Inhalation: Symptoms are those of hydrogen sulfide (H₂S). Inhalation of H₂S is irritating to the respiratory tract. If respiratory irritation or any signs or symptoms described in this bulletin occur, move the person to fresh air. If these effects continue, see a medical doctor immediately. LC₅₀ (rat-4 hr exposure): (M) 3.6 mg/L; (F)3.1 mg/L.

Skin: Chemically burned skin as from calcium hydroxide (lye); may produce systemic toxicity by skin absorption. LD₅₀ (rabbit): 2000 mg/kg. Mild irritating to skin.

Eyes: Chemically burned eye tissue as from calcium hydroxide (lye); may produce severe membrane irritation with corneal damage. Irreversible damage due to high pH.

Chronic Effects:

Carcinogenicity: No evidence available

Teratogenicity: No data available

Reproduction: No data available

Mutagenicity: No data available

SECTION 11: TOXICOLOGICAL INFORMATION (Cont.)

Medical Conditions:

Aggravated by Exposure: Skin irritation may be aggravated in Breathing of H₂S gas may aggravate pulmonary disease such as emphysema individuals with acute or chronic and bronchitis. Existing skin lesions, asthma and chronic pulmonary disease such as emphysema and bronchitis

SECTION 12: ECOLOGICAL INFORMATION

Algal/Lemna Growth Inhibition :	Not known.
Toxicity to Fish and Invertebrates:	Not known
Toxicity to Plants:	Not known
Toxicity in Birds:	Not known

SECTION 13: DISPOSAL CONSIDERATIONS

Contaminated cleanup materials may be hazardous. Refer to sections 4 and 8 of this MSDS before handling. All contaminated materials should be placed in disposable containers and buried in an approved dumping area. Follow all rules governing waste disposal in your area.

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

RCRA 40 CFR 261 Classification:	Non-RCRA hazardous waste
US EPA Waste Number or Description:	Not applicable

If this material is disposed as shipped, it does not meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit characteristics of a hazardous waste of subpart C nor is it listed as hazardous waste under subpart D due to toxicity. As a non-RCRA hazardous liquid waste, it should be disposed of in accordance with all local, state and federal regulations. Consult state or local officials for proper disposal method.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name:	Calcium Polysulfide Solution
DOT Hazard Class	Not applicable
DOT UN Number:	Not applicable
DOT Packing Group:	Not applicable
DOT Primary Label:	None required
DOT Subsidiary Label(s) :	None required
DOT Primary/Subsidiary Placards:	None required
DOT Reportable Quantity (RQ):	Not listed
Marine pollutant:	No
Other Shipping Description:	Lime and Sulfur Solution. NMFC Item 102180, LTL Class 60

SECTION 15: REGULATORY INFORMATION

OSHA:

This material is listed as hazardous material under criteria of the Federal OSHA Hazard communication Standard, 29 CFR 1910.1200

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) /Superfund:

Reportable Quantity: No

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III:
Extremely Hazardous Substance List: No

Section 311/312 (Tier I,II) Categories: immediate Yes
Fire: No
Sudden Release: No
Reactivity: Yes
immediate (Acute) Yes
Delayed (chronic) No

Section 313 (Toxic Release Reporting): No
Threshold Planning Quantity (TPQ): No

TSCA (Toxic Substance Control Act) Inventory Lost: Yes

RCRA Hazard Class: Possible D003

CAA Hazardous Air Pollutant (HAP): No

Proposition 65 (California):
Carcinogen: No
Reproductive Toxin: No

Canadian Regulations:
Product Information:
Controlled Product: Yes
WHIS Hazard Symbol: Material causing other toxic effects

SECTION 16: OTHER INFORMATION

The information herein is believed to be accurate as of the preparation date, but is not warranted as being final authority in the use of this product. The information does not purport to be legal or medical advice.

LEGEND:

CAS:	Chemical Abstract Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act
CFR:	Code of Federal Regulations
DOT:	Department of Transportation
MSDS:	Material Safety Data Sheet
N/A:	Not Applicable
N/D:	Not Determined
NTP:	National Toxicity Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act
STEL:	Short Term Exposure Limit
TSCA:	Toxic Substance Control Act
TLV:	Threshold Limit Value