



Safety Data Sheet

1. Product and Company Identification

Product Name:	LPS
CAS#:	Li ₂ S 12136-58-2 P ₂ S ₅ 1314-80-3
Identified uses:	Laboratory chemicals, Synthesis of substances
Contact Information:	MTI Corporation 860 South 19 th Street Richmond, CA 94804, USA Tel: 510-525-3070 Fax: 510-525-4705 Email: info@mtixtl.com Website: www.mtixtl.com
Non-emergency assistance:	1-888-525-3070
Emergency assistance:	Company: CHEMTEL (MTI Contract# MIS2559467) Day or Night Tel (Within USA and Canada): 1-800-255-3924 Tel (Outside USA and Canada): 1-813-248-0585

2. Hazards Identification

Emergency Overview: GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16

HMIS Rating

Health hazard: 3
Chronic Health Hazard: *
Flammability: 1
Physical Hazard: 1

NFPA Rating

Health hazard: 2
Fire Hazard: 3
Reactivity Hazard: 1
Special hazard I: W

**GHS Label elements, including precautionary statements**

Signal Word

Danger

Hazard statement(s)

H228	Flammable solid.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H301	Toxic if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P223	Do not allow contact with water.
P231 + P232	Handle under inert gas. Protect from moisture.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310 + P330 + P331	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P402 + P404 + P405	Store in a dry place. Store in a closed container. Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator, stench. Contact with water liberates toxic gas.



3. Composition/Information on Ingredients

Substance Name: Lithium Phosphorus Sulfide

Formula: Li₇P₃S₁₁

Molecular weight: 494.21 g/mol

CAS-No.: Li₂S 12136-58-2

P₂S₅ 1314-80-3

EC-No.: Li₂S 235-228-1

P₂S₅ 215-242-4

Hazardous Components

Component	Classification	Concentration
Lithium Sulfide		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H301, H314, H318	<= 70%
Phosphorus pentasulfide		
	Flam. Sol. 1; Water-react. 1; Acute Tox. 4; Aquatic Acute 1; H228, H260, H302 + H332, H400	<= 30%

4. First Aid Measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available



5. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Dry powder Dry sand

Unsuitable extinguishing media

Do NOT use water jet.

5.2 Special hazards arising from the substance mixture

Sulfur oxides, Lithium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further Information

No data available

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. Handling and Storage

7.1 Precautions for safe handling

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. Exposure Control/ Personal Protection**8.1 Control parameters****Components with workplace control parameters**

Component	CAS-No.	Value	Control Parameters	Basis
Phosphorus pentasulfide	1314-80-3	TWA	1.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation		
		TWA	1.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation		
		STEL	3.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation		
		STEL	3 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation		
		TWA	1.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	1.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	1 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	3 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls**Appropriate engineering controls**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

**Personal protective equipment****Eye/face 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).

Skin 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.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril®

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril®

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. 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).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.



9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder
b) Odor	Stench
c) Odor Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Reacts violently with water.

10.4 Conditions to avoid

Heat, flames and sparks. Exposure to moisture

10.5 Incompatible materials

Strong oxidizing agents, acids, Alcohols, Reacts violently with water

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Lithium oxides, Sulfur Oxides, Oxides of phosphorus

Other decomposition products - No data available

In the event of fire: see section 5



11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data 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.

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

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Cough, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed., Hydrogen sulfide is strongly bound to methemoglobin in a manner similar to cyanide. Toxicologically, its reaction with enzymes in the blood stream inhibits cell respiration resulting in pulmonary paralysis, sudden collapse, and death. It is recognized by its characteristic odor of "rotten eggs". Large doses of lithium ion have caused dizziness and prostration and can cause kidney damage if sodium intake is limited.

Dehydration, weight loss, dermatological effects, and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, ataxia, and convulsions may occur. Diarrhea, vomiting, and neuromuscular effects such as tremor, clonus, and hyperactive reflexes may occur as a result of repeated exposure to lithium ion., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.



12. Ecological Information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment PBT/vPvB assessment

Not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. Disposal Considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Contact a licensed professional waste disposal service to dispose of this material. **Contaminated**

Contaminated Packaging

Dispose of as unused product.

14. Transport Information

DOT (US)

UN number: 1340 Class: 4.3 (4.1) Packing group: II

Proper shipping name: Phosphorus pentasulfide

Reportable Quantity (RQ): 100 lbs

UN number: 2923 Class: 8 (6.1) Packing group: II

Proper shipping name: Corrosive solids, toxic, n.o.s. (Lithium sulfide)

Poison Inhalation Hazard: No

IMDG

UN number: 1340 Class: 4.3 (4.1) Packing group: II

EMS-No: F-G, S-N

Proper shipping name: PHOSPHORUS PENTASULFIDE

UN number: 2923 Class: 8 (6.1) Packing group: II

EMS-No: F-A, S-B

Proper shipping name: CORROSIVE SOLID, TOXIC, N.O.S. (Lithium sulfide)

Marine pollutant:yes

IATA

UN number: 1340 Class: 4.3 (4.1) Packing group: II

Proper shipping name: Phosphorus pentasulfide

UN number: 2923 Class: 8 (6.1) Packing group: II

Proper shipping name: Corrosive solid, toxic, n.o.s. (Lithium sulfide)



15. Regulatory Information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

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 Hazards

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right to Know Components

Phosphorus pentasulfide

CAS-No.

1314-80-3

Revision Date

1993-04-24

Lithium sulfide

12136-58-2

Pennsylvania Right to Know Components

Phosphorus pentasulfide

1314-80-3

1993-04-24

Lithium sulfide

12136-58-2

New Jersey Right to Know Components

Phosphorus pentasulfide

1314-80-3

1993-04-24

Lithium sulfide

12136-58-2

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. Other Information

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute Acute aquatic toxicity

Eye Dam. Serious eye damage

Flam. Sol. Flammable solids

H228 Flammable solid.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H301 Toxic if swallowed

H302 Harmful if swallowed.

H302 + H332 Harmful if swallowed or if inhaled

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage

H332 Harmful if inhaled.

H400 Very toxic to aquatic life

Skin Corr. Skin corrosion

The information above is believed to be accurate and represents the best information currently available to us. However, it does not represent any guarantee of the properties of the product. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we shall not be held liable for any damage resulting from handling or from contact with the above product. Users should make their own investigations to determine the suitability of the information for their particular purposes.