



# Materials Safety Data Sheet

## Lithium Sulfide Powder

### 1. Product and Company Identification

Product Name: Lithium sulfide

Formula:  $\text{Li}_2\text{S}$

CAS: 12136-58-2

EC No.: 235-228-1

Synonyms: Lithium sulphide

Recommended Use: Scientific research

Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd

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### 2. Hazards Identification

#### Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP).

Toxic if swallowed. Causes severe skin burns and eye damage

#### GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Danger

Hazard statement(s):

H301: Toxic if swallowed.

H314: Causes severe skin burns and eye damage

Precautionary Statement(s):

P260: Do not breathe dust/fume.

P264: Wash thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing.

P301 + P310 + P330: IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth

P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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/ doctor.

P363: Wash contaminated clothing before reuse.

P405: Store locked up.

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other hazards:** Reacts with moisture to release toxic and flammable gas (H<sub>2</sub> S).

### 3. Composition

Components	CAS	Classification (H)	Concentration
Lithium sulfide (Li <sub>2</sub> S)	12136-58-2	H301 H314	≤100%

### 4. First Aid Procedures

#### Description of first aid measures

**General Treatment:** Seek medical attention if symptoms persist.

**Inhalation:** Remove victim to fresh air. Supply oxygen if breathing is difficult.

**Ingestion:** Seek Medical Attention.

**Skin:** Remove contaminated clothing immediately. Rinse with water for at least 15 minutes. Seek medical attention.

**Eyes:** Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

#### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

## **Indication of any immediate medical attention and special treatment needed**

No data available

## **5. Firefighting Measures**

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### **Extinguishing media**

**Extinguishing Media:** The product itself does not burn. Use suitable extinguishing agent for surrounding material and type of fire.

**Unsuitable extinguishing media:** Avoid direct contact with water due to possible reaction and heat generation.

### **Special hazards arising from the substance or mixture**

No data available

### **Advice for firefighters**

Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

### **Further information**

No data available

## **6. Accidental Release Measures**

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### **Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

### **Environmental precautions**

Isolate runoff to prevent environmental pollution.

### **Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

### **Reference to other sections**

For disposal see section 13.

## **7. Handling and Storage**

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### **Precautions for safe handling**

Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid formation of dust. Do not get in eyes, on skin, or on clothing. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. For precautions see section 2.

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

Store in a cool dry place in a tightly sealed container.

Storage class (TRGS 510): Non-combustible

Store apart from materials and conditions listed in section 10.

### **Specific end use(s)**

Apart from the uses mentioned in section 1 no other specific uses are stipulated

## 8. Exposure Controls/Personal Protection

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### Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### 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

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

##### Body Protection

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

##### Respiratory protection

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards

##### 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 Characteristics

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### Information on basic physical and chemical properties

Appearance

Form: Powder

Colour: White or beige

Odor: Rotten eggs

pH: Reacts with water forming alkaline solution (LiOH) and hydrogen sulfide (H<sub>2</sub>S)

Melting point/range: 938 °C

Boiling point/range: 1372°C

Flash point: No data available

Evaporation rate: Not applicable-Solid

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Relative density: 1.66 g/cm<sup>3</sup>

Water solubility: Reacts violently with water

Partition coefficient: n-octanol/water: not relevant (inorganic)

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

**Other information**

Molecular formula: Li<sub>2</sub>S

Molecular weight: 45.95 g/mol

## 10. Stability and reactivity

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**Reactivity**

Reacts violently with water and acids

May release hydrogen sulfide, which is flammable and toxic

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

Hazardous reaction with water, acids

**Conditions to avoid**

Exposure to moisture, high temperatures, and dust formation.

**Incompatible materials**

Strong acids, strong oxidizing agents, halogens.

**Hazardous decomposition products**

Hydrogen sulfide, Lithium oxides, Sulfur oxides

In the event of fire: see section 5

## 11. Toxicological Information

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**Information on toxicological effects**

**Acute toxicity**

No reliable data available

**Skin corrosion/irritation**

Causes skin burns.

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: Not listed.

OSHA: Not listed.

**Reproductive toxicity**

Animal studies have shown that certain lithium compounds are associated with reproductive toxicity. However, specific data on lithium sulfide are currently unavailable, and its toxicological significance is not fully understood. Please proceed with caution.

**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**

No data available

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**12. Ecological Information****Toxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

This product does not contain any known or suspected endocrine disruptors.

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**13. Disposal Considerations****Waste treatment methods**

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste.

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**14. Transportation Information****ADR /IMDG/IATA**

UN 2923

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

Transport hazard class(es) 8

Subsidiary Hazard Class 6.1

Packaging group II

Hazard due to release of toxic hydrogen sulfide upon contact with moisture.

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**15. Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation: Not applicable

Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances: Not applicable

Regulation (EC) 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021: Not applicable

#### **Chemical Safety Assessment**

No Chemical Safety Assessment has been carried out for this substance

## **16. Other information**

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#### **Revision Date**

2025-07-13

#### **Version:**

1.0

#### **Disclaimer**

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.