

# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: July 15, 2019  
Revision Date: July 15, 2019

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## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** Lithium tetrahydridoaluminate

### 1.2 Other means of identification

**Product number** -  
**Other names** Lithium aluminium hydride; Lithium Aluminium Hydride; Lithiumaluminumhydride

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research use.  
**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Shanghai Yansheng Internet Technology Co., Ltd  
**Address** 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China  
**Telephone** +86-4000-6969-66

### 1.5 Emergency phone number

**Emergency phone number** +86-4000-6969-66  
**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Substances and mixtures, which in contact with water, emit flammable gases, Category 1  
Skin corrosion, Sub-category 1A

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Danger  
**Hazard statement(s)** H260 In contact with water releases flammable gases which may ignite spontaneously  
H314 Causes severe skin burns and eye damage

**Precautionary statement(s)**

**Prevention** P223 Do not allow contact with water.  
P231+P232 Handle and store contents under inert gas/....Protect from moisture.

<b>Response</b>	<p>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...</p> <p>P260 Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P264 Wash ... thoroughly after handling.</p> <p>P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].</p> <p>P370+P378 In case of fire: Use ... to extinguish.</p> <p>P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P316 Get emergency medical help immediately.</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
<b>Storage</b>	<p>P402+P404 Store in a dry place. Store in a closed container.</p> <p>P405 Store locked up.</p>
<b>Disposal</b>	<p>P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.</p>

### 2.3 Other hazards which do not result in classification

no data available

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Lithium tetrahydridoaluminate	Lithium tetrahydridoaluminate	16853-85-3	240-877-9	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### 4.2 Most important symptoms/effects, acute and delayed

Contact of solid with eyes and skin causes severe burns similar to those caused by caustic soda. (USCG, 1999)

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Fire must be extinguished with powdered limestone or dry chemical.

### 5.2 Specific hazards arising from the chemical

Behavior in Fire: Decomposes at 257°F to form hydrogen gas. The heat generated may cause ignition and/or explosion. (USCG, 1999)

### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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## SECTION 6: Accidental release measures

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

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### 6.2 Environmental precautions

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

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

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

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

Store in a cool, dry, well-ventilated location. Separate from ketones, aldehydes, nitrogenous organic compounds.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

<b>Component</b>	Lithium tetrahydridoaluminate
<b>CAS No.</b>	16853-85-3
	Recommended Exposure Limit: 10-Hr Time-Weighted Avg: 10 mg/cu m (total). /Aluminum/
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 5 mg/cu m (resp). /Aluminum/
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 2 mg/cu m. /Aluminum (soluble salts and alkyls, as Al)/
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 5 mg/cu m. /Aluminum (pyro powders and welding fumes, as Al)/

#### Biological limit values

no data available

## 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## 8.3 Individual protection measures, such as personal protective equipment (PPE)

### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	Lithium aluminum hydride is a white powder that turns gray on standing. If spread out over a large flat combustible surface, friction can cause ignition. Used to make other chemicals, as a polymerization catalyst, as a hydrogen source, and as a propellant.
<b>Colour</b>	Microcrystalline powder when pure; gray when aluminum impurity present. Monoclinic crystals.
<b>Odour</b>	None
<b>Melting point/freezing point</b>	181°C(dec.)(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	140°C/13mmHg(lit.)
<b>Flammability</b>	no data available
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	-17°C
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	Solubility (parts/100 parts solvent): 30 (ether); 13 (tetrahydrofuran); 10 (dimethylcellosolve); 2 (dibutyl ether); 0.1 (dioxane).
<b>Partition coefficient n-octanol/water</b>	no data available
<b>Vapour pressure</b>	no data available
<b>Density and/or relative density</b>	0.905g/mL at 25°C
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

## 10.1 Reactivity

Reacts with water vigorously attaining incandescence and ignition of evolved hydrogen [Kelen, Cahiers, 1977, (86), 100]. Reactions with water or moist air (or heated air) are violent and may be explosive [Schmidt, D.L., et al. Inorg. Synth. 1973. p. 14, 51].

## 10.2 Chemical stability

Stable in dry air at room temperature.

## 10.3 Possibility of hazardous reactions

Evolves hydrogen & ignites on contact with water. LITHIUM ALUMINUM HYDRIDE is a powerful reducing agent. React violently on contact with many oxidizing agents. Ignites by friction, especially if powdered. Reacts vigorously with hydroxy compounds such as water, alcohols, carboxylic acids [Mellor 2 Supp. 2:142. 1961]. Caused a violent explosion when used to dry diethylene glycol dimethyl ether: Ignition may have been caused by heat from reaction with impurity water or perhaps decomposition of peroxides in the ether. About 75% of the ether had been removed when the explosion occurred [MCA Case History 1494. 1968]. Reduces carbon dioxide or sodium hydrogen carbonate to methane and ethane at elevated temperatures. These flammable or explosive gases can form when CO<sub>2</sub> extinguishers are used to fight hydride fires. Forms explosive complexes with ether, dimethylamine and various tetrazoles. Tetrazoles include, 2-methyl, 2-ethyl, 5-ethyl, 2-methyl-5-vinyl, 5-amino-2-ethyl [US Pat. 3 396 170, 1968].

## 10.4 Conditions to avoid

no data available

## 10.5 Incompatible materials

Reacts violently with air, acids, alcohols, benzoyl peroxide, boron trifluoride etherate, (2-chloromethyl furan + ethyl acetate), diethylene glycol dimethyl ether, diethyl ether, 1,2-dimethoxyethane, dimethyl ether, methyl ethyl ether, (nitriles + water), perfluorosuccinamide, perfluorosuccinamide plus water, tetrahydrofuran, water.

## 10.6 Hazardous decomposition products

Decomposes to lithium hydride, aluminum metal and hydrogen above 125 deg C without melting.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

no data available

### Reproductive toxicity

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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**SECTION 12: Ecological information****12.1 Toxicity**

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: 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 Other adverse effects**

no data available

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**SECTION 13: Disposal considerations****13.1 Disposal methods****Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

**Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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**SECTION 14: Transport information****14.1 UN Number**

ADR/RID: UN1410 (For reference only, please check.)

IMDG: UN1410 (For reference only, please check.)

IATA: UN1410 (For reference only, please check.)

**14.2 UN Proper Shipping Name**

ADR/RID: LITHIUM ALUMINIUM HYDRIDE (For reference only, please check.)

IMDG: LITHIUM ALUMINIUM HYDRIDE (For reference only, please check.)

IATA: LITHIUM ALUMINIUM HYDRIDE (For reference only, please check.)

**14.3 Transport hazard class(es)**

ADR/RID: 4.3 (For reference only, please check.)

IMDG: 4.3 (For reference only, please check.)

IATA: 4.3 (For reference only, please check.)

#### 14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

#### 14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

#### 14.6 Special precautions for user

no data available

#### 14.7 Transport in bulk according to IMO instruments

no data available

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### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Lithium tetrahydridoaluminate	Lithium tetrahydridoaluminate	16853-85-3	240-877-9
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.

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### SECTION 16: Other information

#### Information on revision

**Creation Date** July 15, 2019

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#### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

#### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto:sds@xixisys.com)**

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