

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**

Trade name **Lithium aluminum hydride**

Stock number: A18116

CAS Number:  
16853-85-3

EC number:  
240-877-9

Index number:  
001-002-00-4

**1.2 Relevant identified uses of the substance or mixture and uses advised against.**

Identified use: SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Thermo Fisher (Kandel) GmbH  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0

**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)  
Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240


**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008

 GHS02 flame

Water-react. 1. H260 In contact with water releases flammable gases which may ignite spontaneously.

 GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Other hazards that do not result in classification No information known.

**2.2 Label elements**

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms**

GHS02 GHS05

Signal word Danger

**Hazard statements**

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

H314 Causes severe skin burns and eye damage.

**Precautionary statements**

P231+P232 Handle under inert gas. Protect from moisture.

P262 Do not get in eyes, on skin, or on clothing.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 IF exposed or concerned:

**2.3 Other hazards**

**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**SECTION 3: Composition/information on ingredients**

**3.1 Substances**

**CAS# Designation:**

16853-85-3 Lithium aluminum hydride

Concentration: ≤100%

Identification number(s):

EC number: 240-877-9

Index number: 001-002-00-4

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

General information Instantly remove any clothing soiled by the product.

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

**After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing** Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed** Causes severe skin burns.

**4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

Suitable extinguishing agents Limestone powder

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**For safety reasons unsuitable extinguishing agents**

Carbon dioxide  
Foam.  
Water.

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

If this product is involved in a fire, the following can be released:

Lithium oxide  
Aluminum oxide

**5.3 Advice for firefighters**

**Protective equipment:**

Wear self-contained breathing apparatus.  
Wear full protective suit.

**SECTION 6: Accidental release measures**

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

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

**6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.

**6.3 Methods and material for containment and cleaning up:**

Use neutralising agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

**Prevention of secondary hazards:** Keep away from ignition sources.

**6.4 Reference to other sections**

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

Handle under dry protective gas.

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

**Information about protection against explosions and fires:** No information known.

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

**Storage**

**Requirements to be met by storerooms and containers:** No special requirements.

**Information about storage in one common storage facility:**

Store away from air.

Store away from water.

Store away from strong bases.

Store away from oxidising agents.

Store away from reducing agents.

Store away from halogens.

Store away from halocarbons.

Store away from alcohols.

**Further information about storage conditions:**

Store under dry inert gas.

This product is moisture sensitive.

This product is air sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and keep away from water.

Store in a locked cabinet or with access restricted to technical experts or their assistants.

**7.3 Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters**

**Components with critical values that require monitoring at the workplace:**

**16853-85-3 Lithium aluminum hydride (100,0%)**

MAK (Germany)	vgl. Abschn. IIb
REL (USA)	Long-term value: 2 mg/m <sup>3</sup> as Al
TLV (USA)	Long-term value: 1* mg/m <sup>3</sup> as Al; *as respirable fraction

**Additional information:** No data

**8.2 Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use breathing protection with high concentrations.

**Recommended filter device for short term use:**

Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves** Nitrile rubber, NBR

**Penetration time of glove material (in minutes)** 480

**Glove thickness:** 0.11 mm

**Eye protection:**

Tightly sealed safety glasses.

Full face protection

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Safety glasses with side shields / NIOSH (US) or EN 166(EU)  
**Body protection:** Protective work clothing.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

##### General Information

##### Appearance:

**Form:** Powder or pellets  
**Odour:** Odourless  
**Odour threshold:** Not determined.

**pH-value:** Not applicable.

##### Change in condition

**Melting point/freezing point:** >125 °C (dec)  
**Initial boiling point and boiling range:** Not determined  
**Sublimation temperature / start:** Not determined  
**Inflammability (solid, gaseous)** Contact with water liberates extremely flammable gases.  
**Ignition temperature:** Not determined  
**Decomposition temperature:** Not determined  
**Self-inflammability:** Not determined.

**Explosive properties:** Not determined.

##### Critical values for explosion:

**Lower:** Not determined  
**Upper:** Not determined  
**Steam pressure:** Not applicable.  
**Density at 20 °C** 0,917 g/cm<sup>3</sup>  
**Relative density** Not determined.  
**Vapour density** Not applicable.  
**Evaporation rate** Not applicable.

##### Solubility in / Miscibility with

**Water:** Reacts  
Contact with water releases flammable gases  
**Partition coefficient: n-octanol/water:** Not determined.

##### Viscosity:

**dynamic:** Not applicable.  
**kinematic:** Not applicable.

#### 9.2 Other information

No further relevant information available.

### SECTION 10: Stability and reactivity

**10.1 Reactivity** In contact with water releases flammable gases which may ignite spontaneously.

**10.2 Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.

#### 10.3 Possibility of hazardous reactions

Reacts with strong oxidising agents  
Contact with water releases flammable gases

**10.4 Conditions to avoid** No further relevant information available.

#### 10.5 Incompatible materials:

Air  
Bases  
Oxidising agents  
Halogens  
Halocarbons  
Alcohols  
Reducing agents  
Water/moisture

#### 10.6 Hazardous decomposition products:

Lithium oxide  
Aluminum oxide

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

#### LD/LC50 values that are relevant for classification:

Oral LD50 85 mg/kg (mouse)

##### Skin irritation or corrosion:

Causes severe skin burns.  
Causes severe skin burns and eye damage.

##### Eye irritation or corrosion:

Causes serious eye damage.  
Causes severe skin burns and eye damage.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity:** No effects known.

**Carcinogenicity:** No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**Reproductive toxicity:** No effects known.

**Specific target organ system toxicity - repeated exposure:** No effects known.

**Specific target organ system toxicity - single exposure:** No effects known.

**Aspiration hazard:** No effects known.

**Subacute to chronic toxicity:** No effects known.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

### SECTION 12: Ecological information

#### 12.1 Toxicity

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability** No further relevant information available.

**12.3 Bioaccumulative potential** No further relevant information available.

**12.4 Mobility in soil** No further relevant information available.

#### Additional ecological information:

##### General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water.  
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.

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Avoid transfer into the environment.  
**12.5 Results of PBT and vPvB assessment**  
PBT: Not applicable.  
vPvB: Not applicable.  
**12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

**13.1 Waste treatment methods**  
**Recommendation**  
Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.  
Consult state, local or national regulations for proper disposal.  
**Uncleaned packagings:**  
**Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

<b>UN-Number</b> ADR, IMDG, IATA	UN1410
<b>14.2 UN proper shipping name</b> ADR IMDG, IATA	1410 LITHIUM ALUMINIUM HYDRIDE LITHIUM ALUMINIUM HYDRIDE
<b>14.3 Transport hazard class(es)</b> ADR	
	
<b>Class</b> <b>Label</b> IMDG, IATA	4.3 (W2) Substances which, in contact with water, emit flammable gases. 4.3
	
<b>Class</b> <b>Label</b>	4.3 Substances which, in contact with water, emit flammable gases. 4.3
<b>Packing group</b> ADR, IMDG, IATA	I
<b>14.5 Environmental hazards:</b>	Not applicable.
<b>14.6 Special precautions for user</b> EMS Number: Stowage Category Handling Code Segregation Code	Warning: Substances which, in contact with water, emit flammable gases. F-G,S-M E H1 Keep as dry as reasonably practicable SG26 In addition: from goods of classes 2.1 and 3 when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained. SG35 Stow "separated from" acids.
<b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b>	
<b>ADR</b> Excepted quantities (EQ): Limited quantities (LQ) Excepted quantities (EQ)	E0 0 Code: E0 Not permitted as Excepted Quantity
<b>Transport category</b> <b>Tunnel restriction code</b>	1 E
<b>IMDG</b> Limited quantities (LQ) Excepted quantities (EQ)	0 Code: E0 Not permitted as Excepted Quantity
<b>UN "Model Regulation":</b>	UN 1410 LITHIUM ALUMINIUM HYDRIDE, 4.3, I

### SECTION 15: Regulatory information

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
Australian Inventory of Chemical Substances Substance is listed.  
Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.  
Directive 2012/18/EU  
Named dangerous substances - ANNEX I Substance is not listed.  
Seveso category O2 Substances and mixtures which in contact with water emit flammable gases  
Qualifying quantity (tonnes) for the application of lower-tier requirements 100 t  
Qualifying quantity (tonnes) for the application of upper-tier requirements 500 t  
REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 40  
National regulations  
**Information about limitation of use:**  
Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.  
**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.  
**Other regulations, limitations and prohibitive regulations**  
ELINCS (European List of Notified Chemical Substances) Substance is not listed.  
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.  
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.  
Substance is not listed.  
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.  
**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
SVHC: Substances of Very High Concern  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety and Health Administration (USA)  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
BEL: Biological Exposure Limit  
Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1  
Skin Corr. 1A: Skin corrosion/irritation – Category 1A

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