



MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 02/05/2013

Version 1.0

SECTION 1. Identification

Product identifier

Product number	814763
Product name	Lithium aluminium hydride (powder) for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Intermediate for use under strictly controlled conditions Chemical for synthesis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America SDS Phone Support: +1-978-715-1335 General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Substances which in contact with water emit flammable gases, Category 1, H260
Skin corrosion, Category 1A, H314
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



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.

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Precautionary Statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.
P370 + P378 In case of fire: Use powder for extinction.
P402 + P404 Store in a dry place. Store in a closed container.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	LiAlH ₄	H ₄ AlLi (Hill)
CAS-No.	16853-85-3	
Molar mass	37.95 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

aluminium lithium hydride (>= 90 % - <= 100 %)

16853-85-3

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Call in physician.

Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath

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Risk of corneal clouding.

The following applies to aluminum compounds in general: After swallowing: only slightly absorbable via the gastrointestinal tract. Serious disorders in man (from about 4000 mg aluminum up): phosphate metabolism, calcium metabolism.

The following applies to lithium compounds in general: when handled or used inappropriately, the absorption of large quantities is followed by CNS disorders, agitation, spasms, ataxia (impaired locomotor coordination) due to disturbed electrolyte balance.

Risk of blindness!

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Sand, Cement, Dry powder

Unsuitable extinguishing media

Water, Carbon dioxide (CO₂), Foam

Special hazards arising from the substance or mixture

Combustible.

Risk of dust explosion.

Development of hazardous combustion gases or vapors possible in the event of fire.

Caution! in contact with water product releases:

Hydrogen

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Remove container from danger zone and cool with water.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts.

Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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SECTION 7. Handling and storage

Precautions for safe handling

Keep workplace dry. Do not allow product to come into contact with water.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep away from heat and sources of ignition.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>aluminium lithium hydride 16853-85-3</i>			
ACGIH	Time Weighted Average (TWA):	1 mg/m ³	Form of exposure: Respirable fraction.
NIOSH/GUIDE	Recommended exposure limit (REL):	2 mg/m ³	Expressed as: as Al
Z1A	Time Weighted Average (TWA):	2 mg/m ³	Expressed as: as Al

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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SECTION 9. Physical and chemical properties

Physical state	powder
Color	white to light gray
Odor	odorless
Odor Threshold	not applicable
pH	alkaline
Melting point	125 °C (decomposition)
Boiling point/boiling range	not applicable
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	not applicable
Relative vapor density	not applicable
Relative density	0.917 g/cm ³ at 68 °F (20 °C)
Water solubility	at 68 °F (20 °C) (rigorous decomposition)
Partition coefficient: n-octanol/water	not applicable
Autoignition temperature	No information available.
Decomposition temperature	> 257 °F (> 125 °C)
Viscosity, dynamic	not applicable
Explosive properties	No information available.

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Bulk density	400 kg/m ³
Viscosity, kinematic	not applicable

SECTION 10. Stability and reactivity

Reactivity

Risk of dust explosion.

Chemical stability

sensitive to moisture

Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapors with:

Water, Oxygen, Alcohols, acids

Risk of explosion with:

boron compounds, Ether, Dioxane, Organic Substances, Oxidizing agents, amides, hydrogen peroxide, Esters, acetonitrile, Peroxides

Exothermic reaction with:

Aldehydes, pyridine

Conditions to avoid

Heat.

Exposure to moisture.

Incompatible materials

no information available

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact, Ingestion

Acute oral toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract, Mucous membranes, Lungs

Corrosive to respiratory system

Skin irritation

Causes severe burns.

Eye irritation

Causes serious eye damage. Risk of corneal clouding. Risk of blindness!

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Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Quantitative data on the toxicity of this product are not available.

Further toxicological data:

Decomposition of the substance with tissue moisture.

Other information

The following applies to lithium compounds in general: when handled or used inappropriately, the absorption of large quantities is followed by CNS disorders, agitation, spasms, ataxia (impaired locomotor coordination) due to disturbed electrolyte balance.

The following applies to aluminum compounds in general: After swallowing: only slightly absorbable via the gastrointestinal tract. Serious disorders in man (from about 4000 mg aluminum up): phosphate metabolism, calcium metabolism.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

No information available.

Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

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Partition coefficient: n-octanol/water
not applicable

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Biological effects:

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Further information on ecology

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1410
Proper shipping name	LITHIUM ALUMINIUM HYDRIDE
Class	4.3
Packing group	I
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1410
Proper shipping name	LITHIUM ALUMINIUM HYDRIDE
Class	4.3
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
IATA (Passenger)	Not permitted for transport

Sea transport (IMDG)

UN number	UN 1410
Proper shipping name	LITHIUM ALUMINIUM HYDRIDE
Class	4.3
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-G S-M

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SECTION 15. Regulatory information

United States of America

OSHA Hazards

Water Reactive

Corrosive to skin

Corrosive by inhalation.

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Reactivity Hazard

Acute Health Hazard

SARA 313

SARA 313: 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 302

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

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

Massachusetts Right To Know

Ingredients

aluminium lithium hydride

Pennsylvania Right To Know

Ingredients

aluminium lithium hydride

New Jersey Right To Know

Ingredients

aluminium lithium hydride

Notification status

TSCA:

On TSCA Inventory

DSL:

This product contains one or several components listed in the Canadian NDSL.

Ingredients

aluminium lithium hydride

SECTION 16. Other information

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Training advice

Provide adequate information, instruction and training for operators.

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

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

H314 Causes severe skin burns and eye damage.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue:02/05/2013

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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