SAFETY DATA SHEET
Lithium aluminium hydride

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

1.1. Product identifier
Product name: Lithium aluminium hydride
Product number: FL161447
CAS number: 16853-85-3
EC number: 240-877-9

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory reagent. Manufacture of substances. Research and development.

1.3. Details of the supplier of the safety data sheet
Supplier: Carbosynth Ltd
8&9 Old Station Business Park
Compton
Berkshire
RG20 6NE
UK
+44 1635 578444
+44 1635 579444
info@carbosynth.com

1.4. Emergency telephone number
Emergency telephone: +44 7887 998634

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification (EC 1272/2008)
Physical hazards: Water-react. 1 - H260
Health hazards: Acute Tox. 3 - H301 Acute Tox. 2 - H330 Skin Corr. 1A - H314 Eye Dam. 1 - H318
Environmental hazards: Not Classified

2.2. Label elements
EC number: 240-877-9

Pictogram

Signal word: Danger

Hazard statements: H260 In contact with water releases flammable gases which may ignite spontaneously.
H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
Precautionary statements

P223 Do not allow contact with water.
P264 Wash contaminated skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water or wrap in wet bandages.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

No data available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name: Lithium aluminium hydride
CAS number: 16853-85-3
EC number: 240-877-9
Chemical formula: LiAlH₄

SECTION 4: First aid measures

4.1. Description of first aid measures

General information
Get medical advice/attention if you feel unwell.

Inhalation
Remove person to fresh air and keep comfortable for breathing. If breathing stops, provide artificial respiration. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention if symptoms are severe or persist.

Ingestion
Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention if symptoms are severe or persist.

Skin contact
Remove contaminated clothing. Rinse with water. Continue to rinse for at least 15 minutes. Wash contaminated clothing before reuse. Get medical attention if symptoms are severe or persist.

Eye contact
Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention if symptoms are severe or persist.

4.2. Most important symptoms and effects, both acute and delayed

General information
See Section 11 for additional information on health hazards.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards
None known.

Hazardous combustion products
Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

5.3. Advice for firefighters
Special protective equipment for firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents. Use protective equipment appropriate for surrounding materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material.

6.2. Environmental precautions

Environmental precautions
Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up
Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections
For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions
Wear protective clothing as described in Section 8 of this safety data sheet. Wash hands thoroughly after handling. Provide adequate ventilation. Avoid generation and spreading of dust. Avoid contact with skin and eyes. Avoid inhalation of dust and vapours.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions
Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s)
The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits
No exposure limits known for ingredient(s).

8.2. Exposure controls

Appropriate engineering controls
Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection
Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection
Wear protective gloves. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection
Wear appropriate clothing to prevent repeated or prolonged skin contact.
Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Particulate filters should comply with European Standard EN143. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

Environmental exposure controls

Keep container tightly sealed when not in use.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid</td>
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<tr>
<td>Odour</td>
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<tr>
<td>Odour threshold</td>
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</tr>
<tr>
<td>pH</td>
<td>No data available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available.</td>
</tr>
<tr>
<td>Initial boiling point and range</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available.</td>
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<tr>
<td>Evaporation rate</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available.</td>
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<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available.</td>
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<tr>
<td>Vapour pressure</td>
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</tr>
<tr>
<td>Vapour density</td>
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</tr>
<tr>
<td>Relative density</td>
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<tr>
<td>Solubility(ies)</td>
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<tr>
<td>Partition coefficient</td>
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<tr>
<td>Auto-ignition temperature</td>
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<tr>
<td>Decomposition Temperature</td>
<td>No data available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available.</td>
</tr>
<tr>
<td>Explosive properties</td>
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</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

9.2. Other information

Molecular weight 37.95

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No data available.

10.2. Chemical stability

Stability Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Lithium aluminium hydride

Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
10.5. Incompatible materials
10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral
Acute toxicity oral (LD₅₀ mg/kg) 85.0
Species Mouse
Notes (oral LD₅₀) Based on available data the classification criteria are not met.
ATE oral (mg/kg) 100.0

Acute toxicity - dermal
Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - inhalation
Notes (inhalation LC₅₀) Based on available data the classification criteria are not met.
ATE inhalation (dusts/mists mg/l) 0.05

Skin corrosion/irritation
Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation
Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitisation
Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation
Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity
Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity
Carcinogenicity Based on available data the classification criteria are not met.
IARC carcinogenicity None of the ingredients are listed or exempt.

Reproductive toxicity
Reproductive toxicity - fertility Based on available data the classification criteria are not met.
Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure
STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure
STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard
Aspiration hazard Based on available data the classification criteria are not met.
Lithium aluminium hydride

Inhalation May be harmful if inhaled.
Ingestion May be harmful if swallowed.
Skin contact May be harmful in contact with skin.
Eye contact May cause eye irritation.

SECTION 12: Ecological information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity
Toxicity Based on available data the classification criteria are not met.

12.2. Persistence and degradability
Persistence and degradability The degradability of the product is not known.

12.3. Bioaccumulative potential
Bioaccumulative potential No data available on bioaccumulation.
Partition coefficient No data available.

12.4. Mobility in soil
Mobility No data available.

12.5. Results of PBT and vPvB assessment
Results of PBT and vPvB assessment No data available.

12.6. Other adverse effects
Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
General information Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered.

SECTION 14: Transport information

14.1. UN number
UN No. (ADR/RID) 3399
UN No. (IMDG) 3399
UN No. (ICAO) 3399
UN No. (ADN) 3399

14.2. UN proper shipping name
Proper shipping name (ADR/RID) ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Proper shipping name (IMDG) ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Proper shipping name (ICAO) ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Proper shipping name (ADN) ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
14.3. Transport hazard class(es)

<table>
<thead>
<tr>
<th>Category</th>
<th>Class/Subclass</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR/RID class</td>
<td>4.3</td>
</tr>
<tr>
<td>ADR/RID subsidiary risk</td>
<td>3</td>
</tr>
<tr>
<td>ADR/RID classification code</td>
<td>WF1</td>
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<tr>
<td>ADR/RID label</td>
<td>4.3</td>
</tr>
<tr>
<td>IMDG class</td>
<td>4.3</td>
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<tr>
<td>IMDG subsidiary risk</td>
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</tr>
<tr>
<td>ICAO class/division</td>
<td>4.3</td>
</tr>
<tr>
<td>ICAO subsidiary risk</td>
<td>3</td>
</tr>
<tr>
<td>ADN class</td>
<td>4.3</td>
</tr>
<tr>
<td>ADN subsidiary risk</td>
<td>3</td>
</tr>
</tbody>
</table>

**Transport labels**

14.4. Packing group

<table>
<thead>
<tr>
<th>Packing Group</th>
<th>Class</th>
</tr>
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<tbody>
<tr>
<td>ADR/RID</td>
<td>I</td>
</tr>
<tr>
<td>IMDG</td>
<td>I</td>
</tr>
<tr>
<td>ADN</td>
<td>I</td>
</tr>
<tr>
<td>ICAO</td>
<td>I</td>
</tr>
</tbody>
</table>

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

<table>
<thead>
<tr>
<th>EmS</th>
<th>F-G, S-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR transport category</td>
<td>0</td>
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<tr>
<td>Emergency Action Code</td>
<td>4W</td>
</tr>
<tr>
<td>Hazard Identification Number (ADR/RID)</td>
<td>X323</td>
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<tr>
<td>Tunnel restriction code</td>
<td>(B/E)</td>
</tr>
</tbody>
</table>

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

**SECTION 15: Regulatory information**

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

<table>
<thead>
<tr>
<th>National regulations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Safety at Work etc. Act 1974 (as amended).</td>
<td></td>
</tr>
<tr>
<td>The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) &quot;CDG 2009&quot;.</td>
<td></td>
</tr>
<tr>
<td>EH40/2005 Workplace exposure limits.</td>
<td></td>
</tr>
</tbody>
</table>
**Lithium aluminium hydride**

**EU legislation**


**15.2. Chemical safety assessment**

No chemical safety assessment has been carried out.

**SECTION 18: Other information**

<table>
<thead>
<tr>
<th>Abbreviations and acronyms used in the safety data sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.</td>
</tr>
<tr>
<td>ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.</td>
</tr>
<tr>
<td>RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.</td>
</tr>
<tr>
<td>IATA: International Air Transport Association.</td>
</tr>
<tr>
<td>IMDG: International Maritime Dangerous Goods.</td>
</tr>
<tr>
<td>CAS: Chemical Abstracts Service.</td>
</tr>
<tr>
<td>ATE: Acute Toxicity Estimate.</td>
</tr>
<tr>
<td>LC₅₀: Lethal Concentration to 50 % of a test population.</td>
</tr>
<tr>
<td>LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).</td>
</tr>
<tr>
<td>EC₅₀: 50% of maximal Effective Concentration.</td>
</tr>
<tr>
<td>PBT: Persistent, Bioaccumulative and Toxic substance.</td>
</tr>
<tr>
<td>vPvB: Very Persistent and Very Bioaccumulative.</td>
</tr>
</tbody>
</table>

**Training advice**

Only trained personnel should use this material.

**SDS number**

144926

**Hazard statements in full**

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

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H330 Fatal if inhaled.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.