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Material Safety Data Sheet

Lithium aluminum hydride MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lithium aluminum hydride

Catalog Codes: SLL1243

CAS#: 16853-85-3

RTECS: BD0100000

TSCA: TSCA 8(b) inventory: Lithium aluminum hydride

CI#: Not available.

Synonym: Aluminum lithium hydride; Lithium alanate; Lithium aluminohydride; Lithium aluminum tetrahydride; Lithium tetrahydroalulminate (1-)

Chemical Name: Aluminate, (1-), tetrahydro-, lithium

Chemical Formula: LiAlH₄

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lithium aluminum hydride	16853-85-3	100

Toxicological Data on Ingredients: Lithium aluminum hydride: ORAL (LD50): Acute: 85 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive). The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, lungs, upper respiratory tract, eyes, central nervous system (CNS), thyroid. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local

skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of moisture.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of heat, of moisture.

Fire Fighting Media and Instructions:

Flammable solid. **SMALL FIRE:** Do not use water or foam. Use DRY chemical powder, soda ash, lime, or sand. **LARGE FIRE:** Dry sand, dry chemical, soda ash, or lime. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside the containers. Cool containers with flooding quantities of water until well after fire is out. Containing vessels are cooled with water in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Water reactive and evolves hydrogen with possible ignition. May ignite spontaneously on grinding or rubbing, or from static sparks. Lithium Aluminum Hydride as the additional fire hazard when it is used in the flammable solvents Diethyl Ether, and

Tetrahydrofuran. It should not be used to dry methyl ethers, or Tetrahydrofuran. Lithium Aluminum Hydride with carbon dioxide in sodium bicarbonate at high temperature is a fire hazard. When heated to decomposition it emits irritating and toxic fumes of hydrogen gas, aluminum oxide, lithium hydroxide, aluminum, lithium hydride.

Special Remarks on Explosion Hazards:

Lithium Aluminum Hydride can react explosively with carbon dioxide in sodium bicarbonate at high temperatures. Hydrides can form dust clouds which can explode due to contact with flames, sparks, heat or oxidizers.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:

Corrosive solid. Poisonous solid. Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 2 (mg(Al)/m) [United Kingdom (UK)] TWA: 2 (mg(Al)/m) from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Powdered solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 37.95 g/mole

Color: White. Grey.

pH (1% soln/water): Not available.

Boiling Point: Not available.

Melting Point: Decomposition temperature: 125°C (257°F)

Critical Temperature: Not available.

Specific Gravity: 0.92 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Decomposes in water with possible ignition.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Water, incompatible materials, heat

Incompatibility with various substances:

Reactive with oxidizing agents, acids, moisture. The product reacts violently with water to emit flammable but non toxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Lithium Aluminum Hydride is a strong reducing agent and water reactive substance. Incompatible with air (carbon dioxide), carbon + sodium bicarbonate at high temp., strong oxidizing agents, acids, alcohols, benzoyl peroxide, born trifluoride etherate, (2-Chloromethylfuran + Ethyl acetate), diethylene glycol dimethyl ether, Diethyl ether, 1,2-dimethoxyethane, Dimethyl ether, Methyl Ethyl Ether, (Nitriles + water), Perfluorosuccinamide, Perfluorosuccinamide + water, Tetrahydrofuran, perchlorates, carboxylic acids, sugars, oxygen, peroxides, chlorinated solvents, and halogens. Reacts violently with water. On contact with water, it forms a corrosive substance: Lithium hydroxide

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Skin contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 85 mg/kg [Mouse].

Chronic Effects on Humans:

May cause damage to the following organs: kidneys, lungs, upper respiratory tract, eyes, central nervous system (CNS), thyroid.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive).

Special Remarks on Toxicity to Animals:

Lethal Dose/Conc 50% Kill: LC50 [Mammal- unspecified species] - Route: Inhalation; Dose: 70 mg/m3. There was no specified period of time of exposure.

Special Remarks on Chronic Effects on Humans:

Lithium ion readily passes the placental barrier. Malformations, including cardiac defects, have been reported in infants of mothers receiving lithium therapy in the first trimester, but a definite cause/effect relationship has not been established. Lithium is present in breast milk at 33 to 50% of the maternal serum lithium concentration. Cardiac effects were seen in a breast-fed infant of a woman receiving lithium therapy. The relevance of this finding to acute lithium aluminum hydride exposure is unknown.

Special Remarks on other Toxic Effects on Humans:**Section 12: Ecological Information**

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 4.3: Dangerous when wet material.

Identification: : Lithium aluminum hydride UNNA: 1410 PG: I

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information**Federal and State Regulations:**

Connecticut hazardous material survey.: Lithium aluminum hydride Rhode Island RTK hazardous substances: Lithium aluminum hydride Pennsylvania RTK: Lithium aluminum hydride Massachusetts RTK: Lithium aluminum hydride Massachusetts spill list: Lithium aluminum hydride New Jersey: Lithium aluminum hydride TSCA 8(b) inventory: Lithium aluminum hydride

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-4: Flammable solid. CLASS B-6: Reactive and very flammable material. CLASS E: Corrosive solid.

DSCL (EEC):

R15- Contact with water liberates extremely flammable gases. S7/8- Keep container tightly closed and dry. S24/25- Avoid contact with skin and eyes. S43- In case of fire, use [***]

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 3

Reactivity: 2

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 2

Reactivity: 2

Specific hazard:

Protective Equipment:

Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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