

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Lithium aluminum deuteride
CAS No.	14128-54-2
Identified Uses	Laboratory chemicals, manufacture of substances
Supplier Address*	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Classification	GHS classification in accordance with 29 CFR 1910 (OSHA HCS) Substances and mixtures, which in contact with water emit flammable gases (Category 1), H260 Acute toxicity, Oral (Category 3), H301 Skin corrosion (Category 1B), H314 Serious eye damage (Category 1), H318 For the full text of the H-Statements mentioned in this section, see Section 16.
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GHS Label elements, including precautionary statements

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.

Precautionary statements

P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P310	Immediately call a POISON CENTER or doctor/ physician.
P321	Specific treatment (see supplemental first aid instructions on this label).
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 3 Flammability = 4 Physical Hazard = 2 Special Hazard = W



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 3 Flammability = 4 Reactivity = 2

HEALTH HAZARD	3
FLAMMABILITY	4
PHYSICAL HAZARD	2

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	Lithium Aluminum Deuteride
CAS No.:	14128-54-2
EC No.:	237-980-6
Chemical Formula:	AID4 - Li
Molecular Weight:	41.98 g/mol

Hazardous Components

Component	Classification	Concentration
Lithium aluminum deuteride	Water-react. 1; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H260, H301, H314	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General Advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If Inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin Contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

Eye Contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

Ingestion

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media

Dry powder.

Special Hazards

Lithium oxides, Aluminum oxide.

Advice for Firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Containment and Cleanup

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

Reference to Other Sections

For disposal see section 13.

7. HANDLING AND STORAGE

Handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition – No smoking.

Storage

Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Hygroscopic Never allow product to get in contact with water during storage. Handle and store under inert gas. Reacts violently with water. Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<i>Control parameters</i>	Components with workplace control parameters. Contains no substances with occupational exposure limit values.
<i>Exposure controls</i>	Appropriate engineering controls. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
Personal Protective Equipment	
<i>Respiratory Protection</i>	Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
<i>Skin Protection</i>	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
<i>Eye/Face Protection</i>	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
<i>Body Protection</i>	Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
<i>Control of Environmental Exposure</i>	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance:</i>	Grey powder
<i>Odor:</i>	No data available
<i>pH:</i>	No data available
<i>Boiling Point:</i>	No data available
<i>Melting Point:</i>	175 °C (347 °F)
<i>Flash Point:</i>	No data available
<i>Evaporation Point:</i>	No data available
<i>Flammability:</i>	No data available
<i>Vapor Pressure:</i>	No data available
<i>Vapor Density:</i>	No data available
<i>Relative Density:</i>	No data available
<i>Water Solubility:</i>	No data available
<i>Partition Coefficient:</i>	No data available
<i>Auto-ignition Temperature:</i>	No data available
<i>Decomposition Temperature:</i>	No data available
<i>Viscosity:</i>	No data available
<i>Explosive Properties:</i>	No data available
<i>Oxidizing Properties:</i>	No data available

10. STABILITY AND REACTIVITY

<i>Reactivity</i>	No data available
<i>Hazardous Decomposition Products</i>	No data available
<i>Chemical Stability</i>	Stable under recommended storage conditions
<i>Incompatible Materials</i>	Strong oxidizing agents, Alcohols, Reacts violently with water. Carboxylic acid, Peroxides, Chlorinated solvents, Halogens
<i>Conditions to Avoid</i>	Exposure to moisture
In the event of fire: see section 5.	

11. TOXICOLOGICAL INFORMATION

Acute toxicity

<i>Behavioral:</i>	Somnolence (general depressed activity)
<i>Lungs, Thorax, or Respiration:</i>	Other changes
<i>Gastrointestinal:</i>	Ulceration or bleeding from stomach
<i>Inhalation:</i>	No data available
<i>Dermal:</i>	Skin corrosion/irritation
<i>Eye:</i>	Serious eye damage/eye irritation
<i>Other Information</i>	Very toxic to aquatic life.

Carcinogenicity

<i>IARC:</i>	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<i>ACGIH:</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
<i>NTP:</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<i>OSHA:</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Lithium and its compounds are possible teratogens by analogy to lithium carbonate which has equivocal human teratogenic data and positive animal teratogenic data.

Specific target organ toxicity

Single exposure: No data available. Repeated exposure: No data available.

Aspiration hazard

No data available

Additional information

RTECS: Not available. Exposure can cause burning sensation, cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Large doses of lithium ion have caused dizziness and prostration, and can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, ataxia, and convulsions may occur. Diarrhea, vomiting, and neuromuscular effects such as tremor, clonus, and hyperactive reflexes may occur as a result of repeated exposure to lithium ion. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

<i>Toxicity</i>	No data available
<i>Persistence and degradability</i>	No data available
<i>Bioaccumulative potential</i>	No data available
<i>Mobility in soil</i>	No data available
<i>Results of PBT and vPvB assessment</i>	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
<i>Other adverse effects</i>	No data available

13. DISPOSAL CONSIDERATIONS

Product	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION**Domestic (DOT US)**

Proper Shipping Name	Lithium aluminum hydride
Hazard Class	4.3
UN No.	1410
Packing Group	I
Reportable Quantity (RQ)	
Marine Pollutant	No
Poison Inhalation Hazard	No

IMDG

Proper Shipping Name	Lithium aluminum hydride
Hazard Class	4.3
UN No.	1410
Packing Group	I
Marine Pollutant	No

IATA

Proper Shipping Name	Lithium aluminum hydride
Hazard Class	4.3
UN No.	1410
Packing Group	I
IATA Passenger:	Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	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 311/312 Hazards	Reactivity Hazard, Acute Health Hazard
Massachusetts Right to Know Components	Lithium aluminum deuteride / CAS No. 14128-54-2 / Revision Date 1993-04-24
Pennsylvania Right to Know Components	Lithium aluminum deuteride / CAS No. 14128-54-2 / Revision Date 1993-04-24
New Jersey Right to Know Components	Lithium aluminum deuteride / CAS No. 14128-54-2 / Revision Date 1993-04-24
California Prop. 65 Components	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

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

<i>Acute Tox.</i>	Acute toxicity
<i>Eye Dam.</i>	Serious eye damage
<i>H260</i>	In contact with water releases flammable gases which may ignite spontaneously.
<i>H301</i>	Toxic if swallowed.
<i>H314</i>	Causes severe skin burns and eye damage.
<i>H318</i>	Causes serious eye damage.
<i>Skin Corr.</i>	Skin corrosion
<i>Water-react.</i>	Substances and mixtures, which in contact with water, emit flammable gases
<i>Prepared By</i>	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
<i>Issuing Date</i>	February 1, 2014
<i>Revision Date</i>	August 01, 2021
<i>Revision Number</i>	2
<i>Revision Note</i>	Required review and update

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
IMO	International Maritime Organization
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances

PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
RTK	Right to Know
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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