Chemical Safety Data Sheet MSDS / SDS

Lithium (2H)hydride SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Lithium (2H)hydride

CAS: 13587-16-1

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

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SECTION 2: Hazards identification

Classification of the substance or mixture

Substances and mixtures, which in contact with water, emit flammable gases, Category 1
Skin corrosion, Sub-category 1B

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H260 In contact with water releases flammable gases which may ignite spontaneously
H314 Causes severe skin burns and eye damage

Precautionary statement(s)

Prevention

P223 Do not allow contact with water.
P231+P232 Handle and store contents under inert gas/....Protect from moisture.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash ... thoroughly after handling.

Response

P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P370+P378 In case of fire: Use ... to extinguish.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P402+P404 Store in a dry place. Store in a closed container.
P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and

regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Lithium (2H)hydride
Common names and synonyms:	Lithium (2H)hydride
CAS number:	13587-16-1
EC number:	237-018-5
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. No mouth-to-mouth artificial respiration. Refer immediately for medical attention.

Following skin contact

Remove contaminated clothes. Put clothes in sealable container. Rinse skin with plenty of water or shower. Refer immediately for medical attention .

Following eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

Most important symptoms/effects, acute and delayed

This material is relatively toxic to people. It is more likely to cause irritation of skin and mucous membrane tissues rather than death. Its effects are primarily acute. A massive exposure to the eyes and by inhalation may be lethal. Those experiencing any ailment of the upper respiratory tract (e.g., bronchitis or pneumonia) are at a greater risk. (EPA, 1998)

Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... Monitor for shock and treat if necessary ... Anticipate seizures and treat if necessary ... For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during treatment ... Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool ... Cover skin burns with dry sterile dressings after decontamination ... Lithium and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Use approved Class D extinguishers or smother with dry sand, dry clay, or dry ground limestone. Do not use carbon dioxide or halogenated extinguishing agents. Do NOT use water. Violent reaction may result.

Specific hazards arising from the chemical

In a fire, irritating alkali fumes may form. Lithium hydride can form airborne dust clouds which may explode on contact with flame, heat, or oxidizing materials. Additionally, spontaneous ignition occurs when nitrous oxide and lithium hydride are mixed. Lithium hydride also forms explosive mixtures with liquid oxygen. Contact with heat, moisture or acid causes exothermic reaction and evolution of hydrogen as well as lithium hydroxide. Incompatible with air and moisture, nitrous oxide, strong oxidizers, and liquid oxygen. Lithium hydride may ignite spontaneously in air and should be maintained and handled out of contact with air and moisture. Any contact with nitrous oxide; airborne powders may ignite upon reaching moisture. (EPA, 1998)

Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours.Avoid contacting with skin and eye. Use personal protective

equipment.Wear chemical impermeable gloves. Ensure adequate ventilation.Remove all sources of ignition. Evacuate personnel to safe areas.Keep people away from and upwind of spill/leak.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Cover the spilled material with dry powder.

Methods and materials for containment and cleaning up

Wearing butyl rubber gloves, fireproof clothing, face shield and goggles, cover spill with sand. Transfer mixture into a dry plastic bag filled in advance with an inert gas. Carry outdoors for incineration. After burning (if not in a proper incinerator), sprinkle water on the residue for complete destruction. Alternatively, in the fume hood, add butanol slowly to the solid mixture until the reaction ceases. Then carefully add water until all the hydride is destroyed. Let stand until solid settles.

SECTION 7: Handling and storage

Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from incompatible materials. See Chemical Dangers. Dry. Keep under mineral oil or inert gas. Cool. Store in an area without drain or sewer access.Store in a cool, dry, well-ventilated location. Must be stored in a dry location. Immediately remove and properly dispose of any spilled material.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Lithium (2H)hydride
CAS No.	13587-16-1
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.025 mg/cu m.

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Lithium hydride is a white or translucent crystalline mass or powder. The commercial product is light bluish-gray lumps due to the presence of minute amounts of colloidally dispersed lithium.
Colour:	Gray cubic crystals or powder, hygroscopic
Odour:	Odorless ...
Melting point/freezing point:	680°C
Boiling point or initial boiling point and boiling range:	Decomposes (NIOSH, 2016)

Flammability:	Combustible Solid that can form airborne dust clouds which may explode on contact with flame, heat, or oxidizers.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available
Auto-ignition temperature:	392° F (USCG, 1999)
Decomposition temperature:	850°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Reacts with water (NIOSH, 2016)
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	0 mm Hg at 68° F (EPA, 1998)
Density and/or relative density:	0.82
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on contact with hot surfaces or flames. This produces irritating alkali fumes. The substance may ignite spontaneously on contact with moist air. The substance is a strong reducing agent. Reacts violently with oxidants, halogenated hydrocarbons and acids. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with water. This produces corrosive

fumes of lithium hydroxide.

Chemical stability

Darkens rapidly on exposure to light.

Possibility of hazardous reactions

Lithium hydride is a flammable solid and is dangerous when wet.Dust explosion possible if in powder or granular form, mixed with air.LITHIUM HYDRIDE is a strong reducing agent. Th esolid may decompose violently in contact with most oxidizing materials. It reacts exothermically with water to form caustic lithium hydroxide and hydrogen gas; the hydrogen may ignite. May ignite spontaneously in moist air. Mixtures with liquid oxygen are explosive. Ignites on contact with dinitrogen oxide [Mellor, 1967, vol. 8, suppl. 2.2, p. 214].

Conditions to avoid

no data available

Incompatible materials

Reacts with the lower alcohols, carboxylic acids, chlorine and ammonia at 400 deg C to liberate hydrogen.

Hazardous decomposition products

Thermally unstable. Decomp at 1009 deg F (400 deg C).

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1414 (For reference only, please check.)
IMDG: UN1414 (For reference only, please check.)
IATA: UN1414 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: LITHIUM HYDRIDE (For reference only, please check.)
IMDG: LITHIUM HYDRIDE (For reference only, please check.)
IATA: LITHIUM HYDRIDE (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 4.3 (For reference only, please check.)
IMDG: 4.3 (For reference only, please check.)
IATA: 4.3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: I (For reference only, please check.)
IMDG: I (For reference only, please check.)
IATA: I (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Not Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Not Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/