SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name Lithium

1.2 Other means of identification

Product number -
Other names rolledfoil;LithiumingotN;LITHIUM

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Shanghai Baishun Biotechnology Co., Ltd
Address No. 26, Lane 918, Lianye Road, Zhelin Town, Fengxian District, Shanghai, 201400, China
Telephone +86-21-37581181

1.5 Emergency phone number

Emergency phone number +86-21-37581181
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

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

2.2 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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Lithium	Lithium	7439-93-2	231-102-5	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Refer for medical attention . See Notes.

4.2 Most important symptoms/effects, acute and delayed

Contact with eyes causes caustic irritation or burn. Incontact with skin lithium reacts with body moisture to cause chemical burns: foil, ribbon, and wire react relatively slowly. (USCG, 1999)

4.3 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: Fire-fighting measures

5.1 Suitable extinguishing media

Extinguish lithium fires only with chemicals designed for this purpose.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Strong alkali fumes are formed in fire. Behavior in Fire: Molten lithium is quite easily ignited and is then difficult to extinguish. Hot or burning lithium will react with all gases except those of the helium-argon group. It also reacts violently with concrete, wood, asphalt, sand, asbestos; and in fact, nearly everything except metal. Do not apply water to adjacent fires. Hydrogen explosion may result. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use special powder. NO water. NO other agents. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. Consult an expert! Do NOT wash away into sewer. Sweep spilled substance into covered dry, metallic, sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: complete protective clothing including self-contained breathing apparatus. Consult an expert! Do NOT wash away into sewer. Sweep spilled substance into covered dry, metallic, sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Eliminate all ignition sources. Keep water away from release. Shovel into suitable dry container.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with water. 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.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants, acids, halons and other incompatible materials. See Chemical Dangers. Dry. Keep under mineral oil.Store in a cool, dry, well-ventilated location. Separate from water.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

MAK: (inhalable fraction): 0.2 mg/m3; peak limitation category: I(1); pregnancy risk group: C

Biological limit values

no data available

8.2 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.

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

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Granular or powder.
Colour	White.
Odour	ODORLESS
Melting point/freezing point	722 °C. Atm. press.:1 013.25 hPa.
Boiling point or initial boiling point and boiling range	1342°C(lit.)
Flammability	Flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	354° F (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Reacts with water
Partition coefficient n-octanol/water	no data available
Vapour pressure	7.90X10-11 Pa (5.92X10-13 mm Hg) at 400 K (127 deg C); 0.000489 Pa (3.67X10-6 mm Hg) at 600 K (327 deg C); 1.08 Pa (0.00810 mm Hg) at 800 K (524 deg C); 109 Pa (0.818 mm Hg) at 1000 K (727 deg C)
Density and/or relative density	2.1 g/cm³.
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Heating may cause violent combustion or explosion. The substance , when finely dispersed, may ignite spontaneously on contact with air. Upon heating, toxic fumes are formed. Decomposes on heating. This produces toxic fumes. Reacts violently with strong oxidants, acids and many compounds (hydrocarbons, halogens, halons, concrete, sand and asbestos). This generates fire and explosion hazard. Reacts violently with water. This produces highly flammable hydrogen gas and corrosive fumes of lithium hydroxide.

10.2 Chemical stability

Decomposes in water

10.3 Possibility of hazardous reactions

Flammable solid.Burns in air, oxygen, nitrogen, hydrogen, and carbon dioxide. The reactions can become extremely violent at higher temperatures. The disposition to ignite of surfaces of molten lithium exposed to any of these gases is increased by the presence of lithium oxides and nitrides. Lithium reacts avidly with water to generate gaseous hydrogen and a solution of lithium hydroxide (a caustic). Contact with halogenated hydrocarbons can produce extremely violent reactions, especially on impact [Haz. Chem. Data 1966]. Boron trifluoride reacts with incandescence when heated with lithium [Merck 11th ed. 1989]. Maleic anhydride decomposes explosively in the presence of lithium [Chemical Safety Data Sheet SD-88. 1962, Chem. Haz. Info. Series C-71. 1960]. Chlorine vapors and lithium react producing a luminous flame [Mellor 2, Supp. 1:380. 1956]. The product of the reaction between lithium and carbon monoxide, lithium carbonyl, detonates violently with water, igniting the gaseous products [Mellor 2, Supp. 2:84. 1961]. The reaction of lithium and ferrous sulfide starts around 260° C with subsequent rise in temperature to 950° C [Mellor 2, Supp. 2:80. 1961]. A truck, which was carrying lithium batteries, sodium dithionite and derivatives of cyanide, caught fire; multiple explosions occurred as the cargo was exposed to the air.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Reacts with water forming lithium hydroxide and hydrogen. Keep under mineral oil or other liquid free from oxygen or water.

10.6 Hazardous decomposition products

Combustion may produce irritants and toxic gases.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat - 525 mg/kg bw.
- Inhalation: LC50 - rat (male/female) - > 2 mg/L air.
- Dermal: LD50 - rabbit (male/female) - > 3 000 mg/kg bw.

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

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause lung oedema. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - 30.3 mg/L - 96 h. Remarks:Li2 CO3.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 33.2 mg/L - 48 h. Remarks:Li2 CO3.
- Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - > 400 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge, domestic - 180.8 mg/L - 3 h. Remarks:LiOH.

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN1415 (For reference only, please check.)	IMDG: UN1415 (For reference only, please	IATA: UN1415 (For reference only, please

check.) check.)

14.2 UN Proper Shipping Name

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

14.3 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.)

14.4 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.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
Lithium	Lithium	7439-93-2	231-102-5
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date July 15, 2019

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/

Other Information

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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