Print

MATERIAL SAFETY DATA SHEET

ZHAO QING LEOCH BATTERY TECHNOLOGY CO., LTD

SAFETY DATA SHEET

1.PRODUCT AND COMPANY IDENTIFICATION

COMPANY IDENTIFICATION

LEOCH Battery

ZHAO QIONG LEOCH BATTERY TECHNOLOGY CO.,LTD.
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Product Identification

Product Name: Lithion-ion Rechargeable Battery
Chemical System: Lithium-ion

2.COMPOSITION / INFORMATION ON INGREDIENTS

IMPORTANT NOTE：The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances.

Component	CAS No.	Weight
Lithium Iron Phosphate	**15365-14-7**	32.5%
Polyvinylidene Fluoride(PVDF)	24937-79-9	2.60%
Aluminium(Al)	7429-90-5	8.10%
Graphite	7782-42-5	16.45%
Styrene-Butadiene Rubber(SBR)	9003-55-8	0.45%
Carboxymethyl cellulose	9000-11-7	0.35%
Copper (Cu)	7440-50-8	15.60%
Lithium Hexafluorophosphate	21324-40-3	16.45%
Polyethylene	9002-88-4	6.75%
Ethylene-Propylene-Diene Monomer	24937-16-4	0.75%

Weight % listed is based on approximate percent of the average weight of the battery

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3. HAZARDS IDENTIFICATION

For the battery cell, chemical materials are stored in a hermetically sealed Aluminum laminated case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage.
However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery cell case will be breached at the extreme, hazardous materials may be released.

Moreover, if heated strongly by the surrounding fire, acrid gas may be emitted. ・Most important hazard and effects

Human health effects:

Inhalation: The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract.

Skin contact: The steam of the electrolyte stimulates a skin. The electrolyte skin contact causes a sore and a stimulation on the skin.

Eye contact: The steam of the electrolyte stimulates eyes. The electrolyte eye contact causes a sore and a stimulation on the eye. Especially, substance that causes a strong inflammation of the eyes is contained.

Environmental effects: Since a battery cell remains in the environment, do not throw out it into the environment.

・Specific hazards:

If the electrolyte contacts with water, it will generate detrimental hydrogen fluoride. Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

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4. FIRST-AID MEASURES

Spilled internal cell materials

・Inhalation:

Make the victim blow his/her nose, gargle. Seek medical attention if necessary.

・Skin contact:

Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact

Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.

・Eye contact:

Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and spilled internal cell materials

・Ingestion:

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Make the victim vomit. When it is impossible or the feeling is not well after vomiting, seek medical attention.

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5. FIRE-FIGHTING MEASURE

・Suitable extinguishing media: Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.

・Specific hazards: Corrosive gas may be emitted during fire.

・Specific methods of fire-fighting: When the battery burns with other combustibles simultaneously, take fireextinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.

・Special protective equipment for firefighters:

Respiratory protection: Respiratory equipment of a gas cylinder style or protection-against-dust mask.
Hand protection: Protective gloves
Eye protection: Goggle or protective glasses designed to protect against liquid splashes Skin and body protection: Protective cloth

6. ACCIDENTAL RELEASE MEASURES

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings.

・Precautions for human body:

Remove spilled materials with protective equipment (protective glasses and protective gloves).

Do not inhale the gas as much as possible. Moreover, avoid touching as much as possible.

・Environmental precautions: Do not throw out into the environment.

・Method of cleaning up:

The spilled solids are put into a container. The leaked place is wiped off with dry cloth.

・Prevention of secondary hazards:

Avoid re-scattering. Do not bring the collected materials close to fire.

7. HANDLING AND STORAGE

・Handling

Technical measures
Prevention of user exposure: Not necessary under normal use.

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Prevention of fire and explosion: Not necessary under normal use.
Precaution for safe handling: Do not damage or remove the external tube.
Specific safe handling advice:
Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water or seawater. Do not expose to strong oxdizers. Do not give a strong mechanical shock or fling. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charger or charge according to the conditions specified by leoch.

・Storage

Technical measures
Storage conditions (suitable, to be avoid): Avoid direct sunlight, high temperature, high humidity.
Store in cool place (temperature: -20 ~ 35 degree C, humidity: 45 ~ 85%).
Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids Packing material (recommended, not suitable): Insulative and tearproof materials are

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recommended.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

・Control parameters:

Not established

・Appropriate engineering controls

Under normal conditions (during discharge) release of ingredients does not occur.
ACGIH: American Conference of Governmental Industrial Hygienists ,Inc.
TLV-TWA: Threshold Limit Value-Time Weighted Average concentration
BEI: Biological Exposure Indices

・Personal protective equipment

Respiratory protection: Respirator with air cylinder, dust mask
Hand protection: Protective gloves
Eye protection: Goggle or protective glasses designed to protect against liquid splashes
Skin and body protection: Working clothes with long sleeve and long trousers

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9. PHYSICAL AND CHEMICAL PROPERTIES

・Appearance

Physical state: Solid
Form: Prismatic
Color: Metallic color (without tube)
Odor: No odor

・pH: NA

・Specific temperatures/temperature ranges at which changes in physical state occur:

There is no useful information for the product as a mixture.

・Flash point: NA

・Explosion properties: NA

・Density: NA

・Solubility ,with indication of the solvent(s): Insoluble in water

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10. STABILITY AND REACTIVITY

・Stability: Stable under normal use

・Hazardous reactions occurring under specific conditions

・Conditions to avoid:When a battery cell is exposed to an external short-circuit, crushes,

deformation, high temperature above 100℃, it will be the cause of heat generation and ignition. Do not put it under sunlight and high humidity directly.

・Materials to avoid: Conductive materials, water, seawater, strong oxidizers and strong acids.

・Hazardous decomposition products: Acrid or harmful gas is emitted during fire.

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11. TOXICOLOGICAL INFORMATION

There is no available data on the product itself. The information of the internal cell materials is as follows.

Lithium cobaltate – LiFePO4

・Acute toxicity: No applicable data.

・Local effects: Unknown.

・Sensitization: The nervous system of respiratory organs may be stimulated sensitively.

・Chronic toxicity/Long term toxicity: No applicable data.

・Skin causticity: Although it is very rare, the rash of the skin and allergic erythema may result.

Aluminum

・Local effects: Aluminum itself has no toxicity. When it goes into a wound, dermatitis may be caused.

・Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or fume, it is possible to cause a lung damage (aluminum lungs).

Graphite

・Acute toxicity: Unknown.

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・Local effects: When it goes into one's eyes, it stimulates one's eyes; conjunctivitis, thickening

of corneal epithelium or edematous inflammation palpebra may be caused.

・Chronic toxicity/Long term toxicity: Since the long-term inhalation of high levels of graphite coarse particulate may become a cause of a lung disease or a tracheal disease.

・Carcinogenicity: Graphite is not recognized as a cause of cancer by research organizations and natural toxic substance research organizations of cancer.

Copper

・Acute toxicity: 60-100mg sized coarse particulate causes a gastrointestinal disturbance with nausea and inflammation. TDLo, hypodermic - Rabbit 375mg/kg

・Local effects:Coarse particulate stimulates a nose and a tracheal. When it goes into one's eyes, the symptom of the reddening and the pain is caused.

・Sensitization: Sensitization of the skin may be caused by long-term or repetitive contact.

・Reproductive effects: TDLo, oral - Rat 152mg/kg

Organic Electrolyte

・Acute toxicity:LD50, oral - Rat 2,000mg/kg or more
・Local effects: Unknown.
・Skin irritation study: Rabbit – Mild
・eye irritation study: Rabbit - Very severe

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12. ECOLOGICAL INFORMATION

・Persistence/degradability: do not bury or throw out into the environment.

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13. DISPOSAL CONSIDERATIONS

・Recommended methods for safe and environmentally preferred disposal:

Product(waste from residues)

Do not throw out a used battery cell. Recycle it through the recycling company.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

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14. TRANSPORT INFORMATION

14.1 UN Number: 3480 or 3481 Inspired Energy LLC Page 9 of 11 January 2018 UN Testing: UN Manual of Tests and Criteria, Part III subsection 38.3 ST/SG/AC.10/C/3/2010 5 th Edition: All battery assemblies noted in Section 1.1 have been tested to meet the referenced standard.
14.2 UN Proper Shipping Name: 3480-Lithium Ion Batteries. 3481-Lithium Ion Batteries Contained in Equipment or Lithium Ion Batteries Packed with Equipment
14.3 Transport Hazard Classes: Class: 9 Subsidiary Risk: None Labels: Lithium Handling Label, Class 9 Lithium Label, Cargo Aircraft Only Label Hazard No. (ADR): 9 Tunnel Restriction Code: E
14.4 Packing Group: II
14.5 Environmental Hazards: None
14.6 Special Precautions for User: Read Safety Data Sheet and Specification Data sheet before use. Australia, New Zealand and Singapore follow Hazchem Code: 4W. TDG/DOT ERG Code: 147. ICAO/IATA ERG Code: 9F.
14.7 Transport in bulk IBC Code: No applicable code.

14.8 Modal Information:
Land (ADR): 3480 – 188, 230, 310, 348, 376, 377 and 636 (Special packaging instruction P903 applies). 3481 – 188, 230, 348, 360, 376, 377 and 636 (Special packaging instruction P903 applies).
Land (RID): 3480 – 188, 230, 310, 348, 360, 376, 377 and 636 (Special packaging instruction P903 applies). 3481 – 188, 230, 348, 360, 376, 377 and 636 (Special packaging instruction P903 applies).
Land (ADN) 3480 – 188, 230, 310, 348, 376, 377 and 636 (Special packaging instruction P903 applies). 3481 – 188, 230, 348, 360, 376, 377 AND 636 (Special packaging instruction P903 applies).
Sea (IMDG): 188, 230, 310, 348 and 957 (Special packaging instruction P903 applies). EmS: F-A, S-I; Stowage Category A; IMDG Code: 9033
Air (IATA) A88, A99, A154, A164, A183, and A206 (Packing Instruction 965, 966, 967). ERG Code: - Lithium ion cell or batteries - Lithium ion batteries in compliance with Packing Instruction 965. Lithium ion cell or batteries packed with equipment - Lithium ion batteries in compliance with Packing Instruction 966. Lithium ion cell or batteries contained in equipment - Lithium ion batteries in compliance with Packing Instruction 967.

All listed provisions may not apply. Inspired Energy products listed under this SDS will conform to various sections of PI 965 or PI 966 or PI 967 based on the contents and packaging of the shipment. Please see the shipping documents for complete details for individual shipments. This document is not intended to replace or authorize shipments of lithium-ion cells; it is intended as a guide for use by trained individuals

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15. REGULATORY INFORMATION

《Classification, Labeling and Packaging Regulation》
《REACH (EC)1907/2006》
《Dangerous Goods Regulation》
《Recommendations on Transport of Dangerous Goods Model Regulations》
《International Maritime Dangerous Goods》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《Classification and code of dangerous goods》
《Occupational Safety and Health Act》(OSHA)
《Toxic Substances Control Act》(TSCA)

《Consumer Product Safety Act》(CPSA)
《Federal Environmental Pollution Control Act》(FEPCA)
《The Oil Pollution Act》(OPA)
《Resource Conservation and Recovery Act》(RCRA)
《Safety Drinking Water Act》(CWA)

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《Code of Federal Regulations》(CFR)
In accordance with all Federal, State and local laws

16. OTHER INFORMATION

・The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.
・This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.
・Reference
Chemical substances information: Japan Advanced Information center of Safety and Health
International Chemical Safety Cards (ICSCs):
International Occupational Safety and Health Information Centre (CIS)
2002 TLVs and BEIs: American Conference of Governmental Industrial Hygienists (ACGIH)
New Dangerous Goods Best Practice 008--in the 51st Edition IATA DGR(2010)(with effect from 01 January 2010)
GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections
ISO 11014:2009(E) Safety data sheet for chemical products –Content and order of sections
IMDG Code – 2008 Edition: International Maritime Organization (IMO)
RTECS(CD-ROM)
MSDS of raw materials prepared by the manufactures
First edition : Feb. 05 2016
Latest edition :Apr. 14 .2018
Prepared and approved by Jiangsu Leoch Battery Technology Co., Ltd.

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