



GeePower Energy Technology Co., Limited

SAFETY TECHNICAL DATA SHEET

(In Accordance With GB-T16483-2008)

SDS Version: Version 2- In English

Compilation Date: Feb 08th, 2013

Product Name: Lithium-ion Rechargeable Battery

Revision Date: Feb 05th, 2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Lithium-ion Rechargeable Battery

Chemical System: Lithium-ion

COMPANY IDENTIFICATION

GeePower Energy Technology Co., Limited.

Add:Hi-Tech industrial park,Xida road,Chang'an Town,Dongguan City,Guangdong, China

Tell: +86 769 85373696 or +86 769 85373969

Web:www.geebattery.com

Email: sales@geepower.cn

Product use:

Recommended Use: provide DC power supply

Restricted Use: no relevant information

2. HAZARDS IDENTIFICATION

For lithium ion battery, chemical materials are stored in a hermetically sealed Aluminum laminated case, designed to withstand high temperatures and pressures. And make sure that there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage during normal use.

However, if exposed to a fire, added mechanical shocks or electric stress by misuse, the gas will release. The battery cell will be breached in extreme cases, hazardous materials such as electrolyte may be released. Moreover, if heated strongly by the surrounding fire, hydrogen fluorite gas may be emitted.

3.COMPOSITION / INFORMATION ON INGREDIENTS

Weight %	Component	CAS No.	PEL	TLV
40	Lithium Iron Phosphate (LiFePO ₄)	15365-14-7	10.0 mg/m ³ (as iron fume)	5.0 mg/m ³
30	Graphite(C)	7440-44-0	2.5mg/m ³ (as dust)	2.0mg/m ³ (as dust)
10	Organic Electrolyte	N.A	None Established	None Established
5	Aluminum	7429-90-5	None Established	None Established
5	Copper	7440-50-8	None Established	None Established

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



GeePower Energy Technology Co., Limited

SAFETY TECHNICAL DATA SHEET

(In Accordance With GB-T16483-2008)

SDS Version: Version 2- In English

Compilation Date: Feb 08th, 2013

Product Name: Lithium-ion Rechargeable Battery

Revision Date: Feb 05th, 2018

4. FIRST-AID MEASURES

Spilled internal cell materials

- Skin 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.

- Inhalation:

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

- Ingestion:

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

5. FIRE-FIGHTING MEASURES

- Extinguishing measures and medium: Carbon dioxide gas, nitrogen gas, chemical powder and foam for fire extinguishing

- Specific hazards: Corrosive gas may be emitted when batteries are burning.

- Announcements of fire fighting and protective measures:

Firefighters should put on protection-against-dust mask, protective gloves, protective glasses and protective clothes in fire fighting and extinguish a fire from the windward as much as possible.

6. ACCIDENTAL RELEASE MEASURES

- Precautions and protective device for human body and emergency response mechanism

Rapidly evacuate the people in polluted area to safe area, quarantine and restrict; Turn off fire source; Suggest the emergency response personnel remove spilled materials with protective equipment (protective glasses and protective gloves); Avoid touching it with hands directly as much as possible.

- Environmental precautions:

Cut off the leak source as much as possible, prevent it going into the restricted space such as sewer and so on

- Method of housing and cleaning up spilled materials and materials used

The spilled solids should be put into a container and can't not be discarded at random, the leaked

place is wiped off with dry cloth. Do not get the container collecting materials close to the fire.

- Prevention of secondary hazards:

Avoid spilling again during cleaning



GeePower Energy Technology Co., Limited

SAFETY TECHNICAL DATA SHEET

(In Accordance With GB-T16483-2008)

SDS Version: Version 2- In English

Compilation Date: Feb 08th, 2013

Product Name: Lithium-ion Rechargeable Battery

Revision Date: Feb 05th, 2018

7. HANDLING AND STORAGE

▪ Handling

Technical measures:

Prevention of user exposure: Not necessary under normal use.

Prevention of fire and explosion: Not necessary under normal use.

Precaution for safe handling: Do not damage or remove the external packaging.

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 oxidizers. Do not give a strong mechanical shock or vibrate. 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 GeePower.

▪ Storage

Technical measures:

Storage conditions (suitable, to be avoid): Avoid direct sunlight, high temperature, high humidity. Store in cool place (temperature: -20 ~ 35°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 recommended.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

▪ Engineering measures:

No engineering measure is necessary during normal use. In case of internal cell materials' leakage, operate the local treatment or improve ventilation.

▪ Control parameters

Common chemical name/ General name	ACGIH(2002)	
	TLV-TWA	BEI
Lithium Iron Phosphate		-
Aluminum	10 mg/m ³ (metal coarse particulate) 5 mg/m ³ (flammable powder) 5 mg/m ³ (weld fume)	-
Carbon	2 mg/m ³	-
Copper	0.2 mg/m ³ (fume)	-
Polyvinylidene Tetrafluoroethylene (PVDF)		-
Organic Electrolyte		-

ACGIH: American Conference of Governmental Industrial Hygienists, Inc.



GeePower Energy Technology Co., Limited

SAFETY TECHNICAL DATA SHEET

(In Accordance With GB-T16483-2008)

SDS Version: Version 2- In English

Compilation Date: Feb 08th, 2013

Product Name: Lithium-ion Rechargeable Battery

Revision Date: Feb 05th, 2018

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

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance and state: Metallic Solid
 - Odor: No odor
 - pH: NA
 - Melting point: NA
 - Boiling point: NA
 - Flashpoint: NA
 - Explosion properties: NA
 - Vapor pressure: NA
 - Vapor density: NA
 - Density: 1.6-2.2g/mL
 - Solubility: Insoluble in water
 - Distribution factor of n-octanol/water: NA
 - Auto-ignition temperature: NA
 - Decomposition temperature: NA
-

10. STABILITY AND REACTIVITY

- Stability: Stable under normal use, but 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°C, it will cause 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 acid
 - Dangerous decomposition product: Maybe come into being acid gas when heating or burning.
-

11. TOXICOLOGICAL INFORMATION

- Acute toxicity:

Copper: 60-100mg sized coarse particulate causes a gastrointestinal disturbance with nausea and inflammation. TDLO, hypodermic-Rabbit 375mg/kg

Organic Electrolyte: LD50, oral - Rat 2,000mg/kg or more



GeePower Energy Technology Co., Limited

SAFETY TECHNICAL DATA SHEET

(In Accordance With GB-T16483-2008)

SDS Version: Version 2- In English

Compilation Date: Feb 08th, 2013

Product Name: Lithium-ion Rechargeable Battery

Revision Date: Feb 05th, 2018

Other: NA

▪ **Skin irritation or corrosion study:**

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

Organic Electrolyte: Rabbit-Mild

▪ Eye irritation study

Organic Electrolyte: Rabbit-Very severe

▪ **Breath or skin allergy study:**

LiFePO₄: Irritate the respiratory system

Al: Maybe cause a lung damage (aluminum lungs) if contact long time

Graphite: The long-term inhalation of high levels of graphite coarse particulate may cause of a lung disease or a tracheal disease.

▪ **Germ cell mutation:** NA

▪ **Carcinogenicity:** NA

▪ **Reproductive toxicity:** NA

▪ **Specific target organ system toxicity-one-time contact:**NA

▪ **Specific target organ system toxicity- contact repeatedly:** NA

▪ **Inhalation hazard:** NA

12. ECOLOGICAL INFORMATION

- Durability and Degradability: NA
- Potential biology accumulation: NA
- Mobility in soil: NA

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.

14. TRANSPORT INFORMATION

The United Nations of Dangerous Goods Code (UN NO.): 3480

The United Nations Shipping Name: Lithium batteries

The United Nations Risk Classification: Class nine dangerous goods

The Packaging Group: Two



GeePower Energy Technology Co., Limited

SAFETY TECHNICAL DATA SHEET

(In Accordance With GB-T16483-2008)

SDS Version: Version 2- In English

Compilation Date: Feb 08th, 2013

Product Name: Lithium-ion Rechargeable Battery

Revision Date: Feb 05th, 2018

Marine pollutant: No

Avoid exposure and high temperature in transportation; Prevent any condensation, falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to the related content of handling and storage in Section 7

15. REGULATORY INFORMATION

- Regulations specifically applicable to the product:

IATA-DGR (air transportation)

IMO-IMDG Code (sea transportation)

US Department of Transportation 49 Code of Federal Regulations [USA]

Wastes Disposal and Public Cleaning Law [Japan]

Law for Promotion of Effective Utilization of Resources [Japan]

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 aspect of the product and should not be conducted 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)

TLVs and BEIs: American Conference of Governmental Industrial Hygienists (ACGIH)

IATA DGR-the 59st Edition (with effect from the January 1, 2018)

IMDG Code -37-14 Edition: International Maritime Organization (IMO)