

# MSDS

Report No. : BL-DG20C0063-304  
Sample Name: Lithium ion Rechargeable Battery Module  
Issue Date : 2020-12-29

Prepared For : SolaX Power Network Technology (Zhejiang) Co., Ltd.

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### Section 1-Chemical Product and Company Identification

Product Name: Lithium ion Rechargeable Battery Module

Trade Mark: /

Model: HV10230      Nominal Voltage: 102.4V

Ratings: 30Ah, 3072Wh(Rated)

Manufacture: SolaX Power Network Technology (Zhejiang) Co., Ltd.

Address: No.288, Shizhu Road, Tonglu Economic Development Zone, Tonglu City, Zhejiang Province  
310000. P. R. CHINA

Factory: SolaX Power Network Technology (Zhejiang) Co., Ltd.

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### Section 2- Composition/Information on Ingredient

Chemical Name	Molecular formula	CAS No.	Weight (%)
Phosphate acid, iron(2+), lithium salt(1:1:1)	LiFePO <sub>4</sub>	15365-14-7	35.3-35.8
Carbon	C	7440-44-0	0.2-0.4
Aluminum	Al	7429-90-5	3-3.5
Copper	Cu	7440-50-8	6.4-6.6
Ethylene Carbonate	C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	96-49-1	6.0-7.0
Poly(ethylene terephthalate)	(C <sub>10</sub> H <sub>8</sub> O <sub>4</sub> ) <sub>n</sub>	25038-59-9	1.0-2.0
Ethyl Methyl Carbonate	C <sub>4</sub> H <sub>8</sub> O <sub>3</sub>	623-53-0	10-11
Polycarbonate macromolecule	(C <sub>15</sub> H <sub>16</sub> O <sub>2</sub> . CH <sub>2</sub> O <sub>3</sub> ) <sub>x</sub>	25037-45-0	0.8-1.0
Polyethylene	(C <sub>2</sub> H <sub>4</sub> ) <sub>n</sub>	9002-88-4	1.83-2.5
Phosphate(1-), hexafluoro-, lithium	LiPF <sub>6</sub>	21324-40-3	2.0-3.0

### Section 3- Hazards Identification

Fatalness grade: In accordance with Regulation (EC) No 1272/2008, the sample is divided into dangerous

article.

Invasion route:

Skin touch: May cause allergy by skin contact with the battery electrolyte.

Eyes touch: Risk of serious damage to the eyes when it contacts with organic solution.

Inhalation: /

Ingestion: Harmful if swallowed.

Health hazards: /

Environment hazards: The components of the battery are harmful to the environment.

Burn & burst danger: It will explode, flame when it machine impinges, short-circuits and in high-temperature situation.

#### **Section 4- First Aid Measures**

Skin touch: Remove any contaminated clothing and flush exposed skin with plenty of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical attention.

Eyes touch: Lifting the upper and lower eyelids, flush the eyes with running water for at least 30 minutes. Seek immediate medical attention.

Inhalation: Remove the patient from exposure and move to fresh air immediately. Keep the respiratory tract smooth. Use oxygen if available. Get medical aid.

Ingestion: Give at least 2 glasses of milk. Induce vomiting unless patient is unconscious. Seek immediate medical attention.

#### **Section 5- Fire Fighting Measures**

Danger characteristic: Batteries may burst and release hazardous decomposition products when exposed to a fire situation. It will explode, flame when it machine impinges, short-circuits and in high-temperature situation. It will react with oxidizer.

Hazardous combustion products: Carbon monoxide, carbon dioxide, metal oxide etc.

Fire-Fighting method: The staff must equip with filter mask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible.

Media: foam, powder, CO<sub>2</sub>, sandy clay.

## Section 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 with 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.

## Section 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. Keep away from fire and heating sources.

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

Specific safe handling advice: The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Never throw out battery cells in a fire or expose to high temperatures. Do not soak battery cells in water or seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or fling. Never disassemble or deform. In the case of charging, use only dedicated charger.

### Storage

Technical measures:

Storage conditions: Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids.

Packing material: Insulative and tear proof materials are recommended.

### Section 8- Exposure Controls, Personal Protection

Respiratory protection: The work place keep well ventilated, wear qualified mask or face mask at work time.

Eyes protection: Goggles, equipped available and safety shower and wash eyes equipment.

Body protection: Wear work clothes, pay attention to protect bare skin.

Hands protection: Wear gloves.

Other Protections: No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.

### Section 9- Physical and Chemical Proper

Appearance

Physical state: Solid      Form: Cuboid      Color: /      Odor: /      pH: /

Specific temperatures/temperature ranges at which changes in physical state occur: There is no useful information for the product as a mixture.

Flash point: No information.

Explosion properties: It will explode, flame when it machine impinges, short-circuits and in high-temperature situation.

Density: No information.

Solubility: Insoluble in water.

### Section 10- Stability and reactivity

Stability: Stable under normal temperature and pressure.

Distribution of Ban: Strong oxidizer, acid, alkali.

Conditions to Avoid: High temperature heat source, fire source.

Decomposition Products: CO, CO<sub>2</sub>, Hydrocarbon hydrocarbon decomposition, toxic smoke.

### Section 11- Toxicological information

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

Phosphate acid, iron(2+), lithium salt(1:1:1)

Acute toxicity: No applicable data. Reference cobalt: LDLO, oral-Guinea pig 20mg/kg.

Local effects: Unknown.

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

Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or vapor of cobalt, it is possible to cause the serious respiratory-organs disease. Skin reaction or a lung disease for allergic or hypersensitive person may be caused.

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).

Carbon

Acute toxicity: Unknown

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 carbon coarse particulate may become a cause of a lung disease or a tracheal disease.

Carcinogenicity: Carbon 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 nauses 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: 50 LD, oral-Rat 2,000mg/kg or more.

Local effects: Unknown.

Skin irritation: Rabbit-Mild.

Eye irritation: Rabbit-Very severe.

### **Section 12- Ecological Information**

No information is available about this product's ecological data.

This product is not allowed to discharge into the sewer or/and rivers.

Mobility: Not available.

Persistence and degradability: Not available.

Bioaccumulative potential: Not available.

Ecotoxicity:

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### **Section 13- Disposal Considerations**

Do not put into drains or waterways.

Waste:

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company. Do not dispose of waste into the environment.

Soiled packaging:

Empty container completely. Keep label(s) on container. Give to a certified disposal contractor.

### **Section 14 – Transport Information**

The Batteries have been tested under provisions of the UN Manual of Tests and Criteria, Part III, sub-section 38.3. Transportation should comply with the PACKING INSTRUCTION PI 965 Section IA / PI 966 Section I / PI 967 Section I of IATA DGR 62nd Edition, IMDG CODE (inc Amdt 39-18) and ADR 2019. The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source.

Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

**UN-Number**

· ADR, IMDG, IATA

UN3480 or UN3481

**UN proper shipping name**

LITHIUM ION BATTERIES

**Transport hazard class(es)**

· ADR, IMDG, IATA

Class 9 Miscellaneous dangerous substances and articles.

**Special precautions for user:** Warning: Miscellaneous dangerous substances and articles

**Section 15- Regulatory information**

Regulatory Information:

International Air Transport Association: Dangerous Goods Regulation

International Maritime Organization: International Maritime Dangerous Goods Code

ISO 11014-2009 Safety data sheet for chemical products - Content and order of sections.

**Section 16- Other Information**

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.