Rep No. CHE13-MAE010041M

MSDS Report

Name of sample: *LITHIUM BATTERIES*

Client unit: *XXXXXX*

Address: *XXXXXX, XXXXXX, XXXXXX*

Inspected by: *Kevin Yu*

Date: *January 4, 2013*

SHENZHEN EBO TECHNOLOGY CO.,LTD EBO TESTING SERVICE

Material Safety Data Sheet

Printing date January 4, 2013 *Reviewed on January 4, 2013*

1 Identification of the substance/preparation and of the company/undertaking

· **Product details**
· **Trade name:** Lithium Batteries
· **Product information:** /
· **Application of the substance :** Phone with machine
· **Manufacturer/Supplier:**

XXXXXX

XXXXXX, XXXXXX, XXXXXX

Tel: +86-755-29040081

Fax: +86-755-29040083

Emergency Tel: +86-755-29040081

· **MSDS Code: CHE13-MAE010041M**

2 Composition/information on ingredients

· **Chemical characterization**
· **Dangerous components:**

12190-79-3	Lithium Cobalt(III) Oxide	20-45%
7429-90-5	LVBO	3-12%
24937-79-9	PVDF	0.5-2%
7782-42-5	Graphite	10-30%
7440-50-8	Copper	5-15%
21324-40-3	Electrolyte	0.65-3%
96-49-1	EC	0-10%
105-58-8	DEC	0-10%
623-53-0	EMC	0-10%

Remark:
Lithium Cobalt (III) Oxide (CAS No. 12190-79-3)
Synonym: Lithiated metal Oxide ($LiCoO_2$)
Lithium hexafluorophosphate
Synonym: Lithium Salt (LiPF6)

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3 Hazards identification

· **Hazard description:**

Harmful

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion.

Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery containers. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

4 First aid measures

Inhalation

Remove from exposure, rest and keep warm. In severe cases obtain medical attention.

Skin contact

Wash off skin thoroughly with water. Remove contaminated clothing and wash before reuse. In severe cases obtain medical attention.

Eye contact

Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.

Ingestion

Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

Further treatment

All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a Doctor.

5 Fire – fighting measures

Hazardous Combustion Products: When burned, hazardous products of combustion including fume of carbon monoxide, carbon dioxide, and fluorine can occur.

Extinguishing Media: Water, carbon dioxide, dry chemical or foam.

Basic Fire Fighting Procedures: Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual Fire &Explosion Hazardous: This material does not represent an unusual fire or explosion hazardous.

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6 Accidental release measures

Accidental

If the battery breakage and electrolyte leakage, evacuate personnel until the smoke cleared.
Wipe with a cloth and placed in steel drums into the bag inside.
If the battery is hot, away from the scene firstly, cool the battery, so that the steam dissipated.
Adequate ventilation.
Avoid skin or eye contact steam.

Waste treatment

The battery Should discharge completely, the waste batteries will be turned over in the relevant sector, and all waste must refer to the United Nations, national, local regulations for disposal.
Reference to national or federal Environmental Protection Agency EPA.

7 Handling and storage

Battery against damaged or burned, Prohibit broken out of the electrolyte. Be stored in sealed containers.
Against short circuit, overcharge, forced discharge, or in a fire.
Prohibit Squeeze or puncture the battery.
Prohibit the battery into the liquid.

Handling and Storage

Prohibit mechanical or electrical damage battery.
Stored in a dry, cool and ventilated environment, to avoid temperature changes or high temperature.
Keep away from heat, avoid prolonged sun exposure.
Battery disass, crush, fire or high temperatures can cause fire or explosion, prohibit short-circuit or error operation.

8 Exposure controls/personal protection

Respiratory Protection

If the battery leaks, the need for full ventilation.

Hand Protection

Under normal use, do not.

Personal Protection

Under normal use, do not.

Other protection

Under normal use, do not.

If the battery leaks, must wear the following protection products.

Occupational exposure standard	Compound	8hr TWA	15min TWA
	Sulfur dioxide	1 ppm	1 ppm
	Hydrogen chloride	1 ppm	5 ppm

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	**Respiratory protection**	In all fire situations, use self-contained breathing apparatus.
	**Hand protection**	In the event of leakage wear gloves.
	**Eye protection**	Safety glasses are recommended during handling.
	**Other**	In the event of leakage, wear chemical apron.

9 Physical and chemical properties

General Information
Form: Battery
Color: Mixed
Odor: Odorless
pH: Not applicable unless individual components exposed
Flash point: Not applicable unless individual components exposed
Flammability: Not applicable unless individual components exposed
Relative density: Not applicable unless individual components exposed
Solubility (water): Not applicable unless individual components exposed
Solubility (other): Not applicable unless individual components exposed

10 Stability and reactivity

Product is stable under conditions described in Section 7.
Hazardous reactions may occur under some specific conditions.
Conditions to avoid: when a battery cell is exposed to an external short-circuit, crushes, modification, high temperature above 100 degree C, it will be the cause of heat generation and ignition. Avoid to be exposed to direct sunlight and high humidity.
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

Primary irritant effect: *None, unless battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.*
Inhalation: *Lung irritant.*
Skin contact: *Skin irritant*
Eye contact: *Eye irritant.*
Ingestion: *Tissue damage to throat and gastro-respiratory tract if swallowed.*
Medical conditions generally aggravated by exposure: *In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.*

12 Ecological information

·***Environmental Impact***
Proper use and disposal of the battery will not harm the environment.
Dispose of the battery, away from water, rain and snow.

13 Disposal considerations

Do not incinerate, or subject cells to temperatures in excess of 100 ℃. Such abuse can result in loss of seal, leakage, and/or cell explosion.
Waste disposal must be in accordance with the applicable regulations. Disposal of the lithium ion battery cells should be performed by permitted, professional disposal page: firms knowledgeable in state or local requirements of hazardous waste treatment and hazardous waste transportation. Incineration should never be performed by battery but users, eventually by trained professional in authorized facility with proper gas and fume treatment.

14 Transport information

We hereby certify that the captioned lithium batteries are non-hazardous materials for air transportation in any nature. The consignment is fully described by proper shipping name and packed, marked and in proper condition for carriage by air. We hereby further certify that the consignment is not classified as dangerous under the current edition of the IATA 54th Effective January 1, 2013, Dangerous goods regulations and all applicable carrier and government regulations.

We also acknowledge that we may be liable for damage resulting from any blunder or omission and we further agree that any air carrier involved in the carriage of this consignment may reply upon this certification.

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Shipper or manufacturer or fully comply with the requirements of UN Manual of Tests and Criteria Part III, subsection 38.3.

Label for conveyance: *For the single cell batteries and multicell battery packs that are non-restricted to transport (non-assigned to the Miscellaneous Class 9), use lithium batteries*

inside label. For the single cell batteries and multicell battery packs which are restricted to transport (assigned to Class 9), use Class 9 Miscellaneous Dangerous Goods and UN Identification Number labels. In all cases, refer to the product transport certificate issued by the Manufacturer.

UN numbers: UN*3480 (shipment of cells and batteries in bulk)*

Shipping names: *Lithium Batteries*

Hazard classification: *Class 9*

Packing Group: *II*

IMDG Code: *3480 (shipment of cells and batteries in bulk)*

Marine pollutant: *No*

ADR Class: *Class 9*

They must be transported according to the requirement of "Comply with Section II of PI965"

These must be transported according to the requirement in special provision "188" and "230".

Separate Lithium batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.
Transport Fashion: By air.

15 Regulatory information

1. The transportation of the lithium-ion batteries is regulated by various bodies(IATA, IMO, ADR, US-DOT) that follows the united nations" Recommendation on the transportation of dangerous goods, model regulation, 2013 IATA 54TH EDITION.
2. Lithium batteries and cells in aircrafts are subjected to shipping requirements exceptions under 49 CFR 173.185.
3. Shipping of lithium batteries in aircrafts are regulated by the international civil aviation organization(ICAO) and the international air transportation(IATA) requirements in special provision " PI965". The shipment contains of PI965 including the passing of the UN38.3 test and the

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reference number. The lithium battery is complied with IATA-DGR; special provision A123.
4. Shipping of lithium batteries on sea are regulated the international maritime dangerous goods(IMDG) requirements of UN3480(Lithium Ion Batteries).
5. Cobalt compounds supposed hazardous and subjected to reporting requirements of section 313 of title 1:1 of the suspended are amendments and reauthorization act of 1986(SARA) and 40 CFR part 372.
6. Packing Instruction has the shipment comply with section II of PI965. The consignment does not contain any recalled and/or defective batteries

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.