

**MATERIAL SAFETY DATA SHEET**

Revision:1.0

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT IDENTIFICATION  
Lithium-Ion Battery

MANUFACTURER  
Chenzhou Grand-pro Tech Co.,Ltd

ADDRESS  
2-3F,Building#13,Taiwan Industrial Park Linyi Road,Suxian District,Chenzhou City

DATE : 2014-05-25

TEL: (86)735-2668191

FAX: (86)735-2668187

**2. COMPOSITION INFORMATION**

CAS-No.	Chemical name	Quantity
1307-96-6	Cobalt oxide	< 30 %
1313-13-9	Manganese dioxide	< 30 %
1313-99-1	Nickel oxide	< 30 %
7440-44-0	Carbon	< 30 %
	Electrolyte (*)	< 20 %
24937-79-9	Polyvinylidene fluoride (PVdF)	< 10 %
7429-90-5	Aluminium foil	2 - 10 %
7440-50-8	Copper foil	2 - 10 %
	Aluminium and inert materials	5 - 10 %

**3. HAZARDS IDENTIFICATION**

## PRIMARY ROUTES OF ENTRY

Skin contact, Skin absorption, Eye contact, Inhalation, and Ingestion :

## NO SYMPTOMS OF EXPOSURE

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China

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**Skin contact**

No effect under routine handling and use.

**Skin absorption**

No effect under routine handling and use.

**Eye contact**

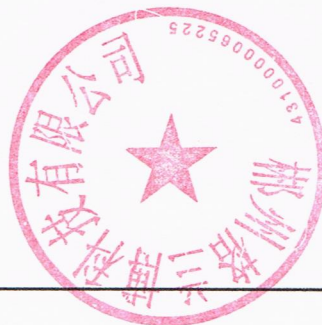
No effect under routine handling and use.

**Inhalation**

No effect under routine handling and use.

**REPORTED AS CINOGEN**

Not applicable



**4. FIRST AID MEASURES**

**INHALATION, EYE CONTACT, and SKIN CONTACT** : Not a health hazard.

**INGESTION**

If swallowed, obtain medical attention immediately.

If exposure to internal materials within cell due to damaged outer casing, the following actions are recommended.

**INHALATION**

Leave area immediately and seek medical attention.

**EYE CONTACT**

Rinse eyes with water for 15 minutes and seek medical attention.

**SKIN CONTACT**

Wash area thoroughly with soap and water and seek medical attention.

**INGESTION**

Drink milk/water and induce vomiting; seek medical attention.

**5. FIRE FIGHTING MEASURES**

**GENERAL HAZARD**

Cell is not flammable but internal organic material will burn if the cell is incinerated. Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide.



**EXTINGUISHING MEDIA**

Use extinguishing media suitable for the materials that are burning.

**SPECIAL FIREFIGHTING INSTRUCTIONS**

If possible, remove cell(s) from fire fighting area. If heated above 120°C, cell(s) can explode/vent.

**FIREFIGHTING EQUIPMENT**

Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

**6. ACCIDENTAL RELEASE MEASURES**

**ON LAND**

Place material into suitable containers and call local fire/police department.

**IN WATER**

If possible, remove from water and call local fire/police department.

**7. HANDLING AND STORAGE**

**HANDLING**

No special protective clothing required for handling individual cells.

**STORAGE**

Store in a cool, dry place.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**ENGINEERING CONTROLS**

Keep away from heat and open flame. Store in a cool dry place.

**PERSONAL PROTECTION**

Respirator: Not required during normal operations. SCBA required in the event of a fire.

Eye/face protection: Not required beyond safety practices of employer.

Gloves: Not required for handling of cells.

Foot protection: Steel toed shoes recommended for large container handling.

**9. PHYSICAL AND CHEMICAL PROPETIES**

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State	Solid
Odor	N/A
PH	N/A
Vapor pressure	N/A
Vapor density	N/A
Boiling point	N/A
Solubility in water	Insoluble
Specific gravity	N/A
Density	N/A

## 10. STABILITY AND REACTIVITY

### REACTIVITY

None

### INCOMPATIBILITIES

None during normal operation. Avoid exposure to heat, open flame, and corrosives.

### HAZARDOUS DECOMPOSITION PRODUCTS

None during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

### CONDITIONS TO AVOID

Avoid exposure to heat and open flame. Do not puncture, crush or incinerate.

## 11. TOXICOLOGICAL INFORMATION

This product does not elicit toxicological properties during routine handling and use.

Sensitization: NO	Teratogenicity: NO	Reproductive toxicity: NO	Acute toxicity: NO
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This product does not contain any kinds of the following substances and halogen-type flame retardants including Chlorine and Bromide type harmful flame retardants which are listed in Appendix of TCO documents and relevant international ECO requirements:

- Polybromated Biphenyls (PBB)
- Polybromated Biphenyl Ethers (PBBE)
- Polybromated Biphenyl Oxides (PBBO)
- Polybromated Diphenylethers (PBDE)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Diphenylethers (PCDE)
- Tetrabromophenol A (TBBPA)
- Asbestos, Antimonytrioxide, Dioxine

None of the following substances will be exposed, leaked, or emitted during transportation,

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storage or any operation and any temperature condition:

- Chlorinated Fluorohydrocarbon (FCKW)
- Acrylonitrile
- Styrol
- Phenol
- Benzol
- Mercury of greater than 0.0001 wt% for alkaline battery
- Mercury of greater than 0.0005 wt% for other battery
- Lithium content of greater than 0.5g/battery cell
- Cadmium, lead, and other harmful heavy metal

This product does not contain mercury and lithium-metal.

Mercury content: <

Lithium-Ion content: <

If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.



## 12. ECOLOGICAL INFORMATION

Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

## 13. DISPOSAL INFORMATION

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.

RCRA Waste Code: Nonregulated

Dispose of according to all federal, state, and local regulations.

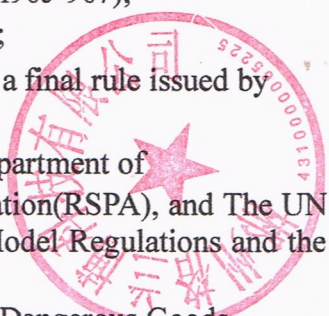
## 14. TRANSPORTATION INFORMATION

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In the case of transportation, confirm no leakage and no overspill from a container. Take in a cargo of them without 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 Section 7-HANDLING AND STORAGE also. We regard to air transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions;
- The International Air Transport Association(IATA) Dangerous Goods Regulations(55TH Edition 2014: complies with current IATA packing instruction of PI965-967);
- The International Maritime Dangerous Goods(IMDG) Code;
- The US Hazardous Materials Regulation(HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportation’s Research and Special Programs Administration(RSPA), and The UN Recommendations on the Transport of Dangerous Goods Model Regulations and the Manual of Tests and Criteria.
- The results of the UN Recommendation on the Transport of Dangerous Goods



Manual of Test and Criteria (38.3 Lithium battery)		Test Results	Remark
No.	Test Item		
T1	Altitude Simulation	Pass	
T2	Thermal Test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External Short Circuit	Pass	
T6	Impact	Pass	
T7	Overcharge	Pass	For Pack Only
T8	Forced Discharge	Pass	For Pack Only

However, since it corresponds to IATA-DGR, this battery cell can be conveyed normally.

## 15. REGULATORY INFORMATION

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous      .       Non-hazardous

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Prepared and Approved By  
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