

## Material Safety Data Sheet

MSDS Name: Lithium-ion Polymer Battery

Model: Rectangular Type Cells\_

Document No: YK.MSDS.2013.186

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: Lithium-ion Polymer Battery

Company Identification: YOKU ENERGY (ZHANGZHOU) CO., LTD.

Address: YOKU Industrial Zone, Nanjing, Zhangzhou, Fujian

Model: BP7416/1600mAh

Voltage:7.4V

Power:11.84W

Eenergy:11.84Wh

Energy density:392.515Wh/L

YOKU ENERGY (ZHANGZHOU) CO., LTD. Call: 0596-7666111

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

The Lithium-ion battery is hermetically sealed; among its components, the following ones could potentially be hazardous upon release.

Ingredient	Concentration	CAS No.	EINECS No.
Lithium Cobaltite(LiCoO <sub>2</sub> )	26~30%	12190-79-3	235-362-0
Graphite Power	11~15%	7440-44-0	231-153-3
Copper Foil	16~20%	7440-50-8	231-259-6
Aluminum Foil	5~6%	7429-90-5	231-072-3
LiPF <sub>6</sub>	4~5%	21324-40-3	244-334-7
Ethylene glycol carbonate	11~15%	96-49-1	202-510-0
PP or PE	16~20%	/	/

### 3. HAZARDS IDENTIFICATION

**Classification:** Carcinogenic Category 3R40, Xn, sensitizing R43

**Most important hazards:** There's limited evidence of a carcinogenic effect. There are possible risks of irreversible effects. It may cause sensitization by skin contact.

**Further information:** The sealed lithium-ion battery is not hazardous when used according to recommendations. Under normal conditions of use, the integrity of the battery's package and security vent are maintained. The ingredients are not expected to pose a significant risk to man or the environment. The classification above is based on the contents being considered as a preparation in accordance with Directive 1999/45/EC.

### 4. FIRST AID MEASURES

#### General advice

Show this safety data sheet to the doctor in attendance.

*The information below refers to exposure to the ingredients.*

#### Inhalation

Immediate medical attention is required. Move to fresh air. If symptoms persist, call a physician.

#### Skin contact

Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. If skin irritation persists, call a physician.

#### Eye contact

Immediate medical attention is required. Remove contact lenses. Rinse immediately with plenty of water for at least 15 minutes.

**Ingestion**

Immediate medical attention is required. Gently wipe or rinse the inside of the mouth with water. Give small amounts of water to drink. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Centre immediately.

**5. FIRE-FIGHTING MEASURES****Suitable extinguishing media**

Foam dry powder, carbon dioxide (CO<sub>2</sub>), sand.

**Extinguishing media which must not be used for safety reasons**

Water, water spray

**Specific hazards**

There's risk of receptacle bursting.

**Special protective equipment for firefighters**

In the event of fire, wear self contained breathing apparatus. Wear personal protective equipment.

**Hazardous decomposition products**

Lithium compounds, carbon oxides, hydrogen fluoride

**6. ACCIDENTAL RELEASE MEASURES**

*The information below refers to exposure to the ingredients.*

**Personal precautions**

Use personal protective equipment. Avoid contact with skin and eyes.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so.

Do not allow material to contaminate ground water system.

To avoid risks to man and the environment, comply with the instructions for use.

**Methods for cleaning up**

Pick up and transfer to properly labeled containers. Dispose of in accordance with local regulations.

**7. HANDLING AND STORAGE****Handling****Technical measures/Precautions**

No special technical protective measures required.

**Safe handling advice**

Avoid contact with skin and eyes.

Use personal protective equipment.

Follow the instructions for use issued by the producer.

**Storage****Technical measures/Storage conditions**

Keep in a dry, cool and well-ventilated place, preferably in the temperature range of +5 to +25°C at 65%(+/-5%) relative humidity.

Keep away from heat and sources of ignition.

Keep away from water.

Ensure battery terminals are protected during storage.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Occupational exposure controls

#### Engineering measures

Ensure adequate ventilation, especially in confined areas.

#### Personal protective equipment

Not required under normal use.

*The information below refers to exposure to the ingredients.*

#### Respiratory protection

Effective dust mask.

#### Hand protection

Neoprene gloves (EN 374).

#### Eye protection

Safety glasses with side-shields conforming to EN166

#### Skin and body protection

Boots, apron, long sleeved clothing.

#### Hygiene measures

General industrial hygiene practice.

#### Environmental exposure controls

*The information below refers to exposure to the ingredients*

Prevent product from entering drains.

Do not allow material to contaminate ground water system.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### General Information

Form battery (sealed unit)    **Color:** silvery    **Odor:** odorless

### Important Health Safety and Environmental Information

Not applicable

## 10. STABILITY AND REACTIVITY

### Stability

Stable under normal conditions.

### Hazardous polymerization

Hazardous polymerization does not occur.

### Conditions to avoid

Keep away from heat and sources of ignition.

### Materials to avoid

Exposure to moisture.

### Hazardous decomposition products

Lithium compounds, carbon oxides, hydrogen fluoride

## 11. TOXICOLOGICAL INFORMATION

*The information below refers to exposure to the ingredients.*

### Local effects

May cause eye/skin irritation. May cause irritation of respiratory tract.

### Long term toxicity

No data available. Avoid repeated exposure.

**Specific effects**

May cause sensitization by inhalation and skin contact. Limited evidence of a carcinogenic effect.

**12. ECOLOGICAL INFORMATION**

If used as directed and if the integrity of the battery's package and security vent are maintained, the ingredients are not expected to pose a significant risk to the environment.

**Mobility**

No data available.

**Persistence and degradability**

Not readily biodegradable.

**Eco-toxicity effects**

No data available.

**13. DISPOSAL CONSIDERATIONS****Waste from residues / unused products**

Dispose of in accordance with local regulations. It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations. It should not be released into the environment.

**Contaminated packaging**

Not applicable.

**Further information**

Never incinerate Li-Ion batteries.

Never dispose Li-Ion batteries as landfill.

**14. TRANSPORT INFORMATION**

In airfreight, sealed Lithium-ion batteries are considered as "Lithium Batteries – Not Restricted", when they can meet the requirements of PI960 of IATA Dangerous Goods Regulations (UN3480).

In sea-freight, sealed lithium-ion batteries are considered as "Lithium Batteries – Not Restricted", when they can meet the requirements of IMDG Code pursuant to Special Provision 188 of IMO Dangerous Goods Regulations.

The model is BP7416/1600mAh. The voltage is 7.4V. It includes 2 cells in series. It is 11.84Wh. The battery doesn't exceed 100wh. So this battery doesn't belong to class 9 with reference to IATA, 2013 Dangerous Goods Regulations of 54<sup>th</sup> edition. It complies with the necessary testing requirements under the UN Manual of Tests and Criteria, Part III, sub-section 38.3. It complies with 965 Section II.

For more information, please refer to the newest UN Manual of Tests and Criteria, Part III, sub-section 38.3 Lithium Batteries, IATA Dangerous Goods Regulations, UN Recommendations on the Transport of Dangerous Goods Model Regulations, International Maritime Dangerous Goods (IMDG) code, Regulations concerning the Intl Transport of Dangerous Goods by Rail (RID) and Agreement on Dangerous Goods by Road (ADR). It is especially important to ensure that batteries are packed in such a way to prevent short circuits.

**15. REGULATORY INFORMATION****Law Information**

《Dangerous Goods Regulation》

《Recommendations on the 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)  
《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》(SARA)  
《Resource Conservation and Recovery Act》(RCRA)  
《Safety Drinking Water Act》(CWA)  
《California Proposition 65》  
《Code of Federal Regulations》(CFR)

In accordance with all Federal, State and Local laws.

## 16. ADDITIONAL 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 and 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.

Reported by:

Company Name: YOKU ENERGY (ZHANGZHOU) CO.,LTD

Date: 2013-05-09