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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Lithium-ion Battery

MANUFACTURER

Palladium Energy
No.508 ChunDong Road
Shanghai, 201108 China
TEL: 86-21-54422800

2. COMPOSITION INFOMATION

A. Lithium-Ion Single Cell Matrix

Manufacture	Cell	Type	Capacity (mAh)	Lithium Weight(g)/Cell	No Cd/Pb/Hg
HYB	ICP633450	Li-ion	1100	0.033	None
HYB	ICP853450A	Li-ion	1400	0.042	None

B. Battery Product Matrix

Battery Name	PE P/N	Customer P/N	Lithium Weight(g)	Wh	Cell number	No Cd/Pb/Hg
9555	L02L40525	BAT20801	0.066	8.1	ICP633450	None
9505	L02L40523	SYN0060C	0.084	10.4	ICP853450A	None
9505A	L02L40524	BAT0602	0.084	10.4	ICP853450A	None

3. MSDS FOR CELL

See the Doc. below: HYB MSDS

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MATERIAL SAFETY DATA SHEET

Lithium Ion Battery Cell

HYB Battery Co., Ltd **MSDS No: 0901-20A**

Issued Date: Jan. 20, 2009

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identification: Lithium Ion Cell or Battery

1.2 Manufacturer's Information:
Manufacturer's Name: HYB Battery Co., Ltd.
Manufacturer's Address: Block 13-16, Fumin Industrial Park, Pinghu Town, 518111, Shenzhen City, China
Manufacturer's Country: China
General Information Telephone: 86-755-84686666
General Information FAX: 86-755-84686256
Website: http://www.hyb-battery.com

2. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS No.	Concentration	ACGIH-TLV*
Lithium Cobalt Dioxide	12190-79-3	25-40 %	0.02mg/m^3 (Co, TWA)
Max Lithium Equivalent content	**7439-93-2**	**20Wh/cell 100Wh/battery**	—
Aluminum foil	7429-90-5	2-6 %	2mg/m^3 (Soluble salts, TWA)
Graphite	7782-42-5	11-21 %	2mg/m^3 (Dust, TWA)
Copper foil	7440-50-8	6-16 %	0.2mg/m^3 (Fume, TWA)
Organic electrolyte	—	8-18 %	None established
Lithium hexafluorophosphate	21324-40-3	1-4 %	2.5mg/m^3 (F, TWA)
Steel and inert components	7439-89-6	balance	—

*ACGIH: American Council of Government Industrial Hygienists.
*TLV: Threshold Limit Value are Personal exposure limit determined by ACGIH.
*TWA: Time Weighed Average Concentration.

3. HAZARDS IDENTIFICATION

Under normal conditions of use, the cell or battery is hermetically sealed.
Ingestion: Swallowing a cell or battery can be harmful.
Inhalation: Contents of a leaking cell or battery can cause respiratory irritation.
Skin Contact: Contents of a leaking cell or battery can cause skin irritation.
Eye Contact: Contents of a leaking cell or battery can cause severe irritation.

Handling: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids Packing material (recommended, not suitable): Insulative and tearproof materials are recommended.

The contents of an leaking cell, when exposed to water, may result in a fire and/or explosion. Crushed or damaged cells and batteries may result in a fire.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Investigate engineering techniques to reduce exposures use with adequate ventilation and recommended personal protective equipment.
Eye/Face protection: Use good industrial practice to avoid eye contact. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely wear chemical goggles and have eye flushing equipment available
Skin protection: Minimize skin contamination by following good industrial hygiene practices. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.
Respiratory protection: Avoid breathing dust and processing vapors. When adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic dusts.
Special clothing: Robber gloves.

9. PHYSICAL and CHEMICAL PROPERTIES

Physical state: Solid
Form: Geometric solid
Color: Metallic color (without outer PVC cover)
Odor: No odor
pH: Not Applicable
Flash point: Not Applicable
Explosion properties: Not Applicable
Density: Not Applicable
Solubility: Not Soluble

10. STABILITY AND REACTIVITY

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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4. FIRST-AID MEASURES

Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately.
Inhalation: Provide fresh air and seek medical attention.
Eyes contact: Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.
Skin contact: Remove contaminated clothing and thoroughly wash with soap and plenty of water. If irritation persists, seek medical attention.

5. FIRE-FIGHTING MEASURE

Hazardous Combustion Products: When burned, hazardous products of combustion including fumes 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 Hazards: This material does not represent an unusual fire or explosion hazard.
Flash Point: 38℃ (CC) (100F)
Auto-ignition Temperature: No Data.
Flammability Limits in Air, Lower, % by Volume: 1.4
Flammability Limits in Air, Upper, % by Volume: 11

6. ACCIDENTAL RELEASE MEASURES

.To cleanup leaking cells and batteries:
Ventilation Requirements: Room ventilation may be required in areas where there are open or leaking cells and batteries.
Respiratory Protection: Avoid exposure to electrolyte fumes from open or leaking cells and batteries.
Eye protection: Wear safety glasses with side shields if handling an open or leaking cell or battery.
Gloves: Use neoprene or nature rubber gloves if handling an open or leaking cell or battery.
Battery materials should be collected in a leak-proof container.

7. HANDLING AND STORAGE

Storage: Do not place the cell or battery near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery life and degrade performance.
Store in cool place (temperature: -20-45C, humidity: 45-75%).

Mechanical Containment: If potting or sealing the cell or battery in an airtight or watertight container is required, consult your HYB Battery Co., Ltd. Representative for precautionary suggestions. Do not obstruct safety release vents on cells. Encapsulation of batteries will not allow cell venting and can cause high pressure rupture.

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11. TOXICOLOGICAL INFORMATION

Lithium Ion cells and batteries are not hazardous waste. Under normal conditions of use, lithium Ion or lithium polymer cells and batteries are non-toxic.

12. ECOLOGICAL INFORMATION

Issues such as ecotoxicity, persistence and bioaccumulation are not applicable for articles.

13. DISPOSAL CONSIDERATIONS

Waste disposal must be in accordance with the applicable regulations. Disposal of the lithium ion cells or batteries 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/SHIPPING INFORMATION

This consignment has been packed in compliance with Part 1 of PI966。

In general, the transportation of lithium Ion cells and batteries is regulated as UN3480 & UN3481 by the International Civil Aviation Organization, International Air Transport Association, and International Maritime Dangerous Goods Code. However, for air shipment, the lithium ion or lithium polymer cells and batteries must **comply with Part 1 of PI965~PI967** per *the 50th edition of the IATA Dangerous Goods Regulations (Year 2009).*

The cells or batteries for air shipment must comply with part 1 of PI 965~PI967 accordingly as "Not Restricted" Cargo:

- For cells, the watt-hour rating should not be more than 20Wh.
  For batteries, the watt-hour rating should not be more than 100Wh.
  Watt-hour rating must be marked on the outside of the battery case except those manufactured before 1 January 2009, which may be transported without this marking until 31 December 2010.
- Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Test and Criteria, Part III, subsection 38.3.
- Packing requirements:
  General packing requirement: Cells and batteries must be packed in strong outer packagings that conform to 5.0.2.4, 5.0.2.6.1 and 5.0.12.1.
  Additional requirements: 1) Cells and batteries must be packed in inner packagings that completely enclose the cell or battery. 2) Cells and batteries must be protected so as to prevent short circuits.3) Each package must be capable of withstanding a 1.2m drop test in any orientation without damage to cells or batteries contained therein, shifting of the contents so as to allow battery to battery contact and release of contents.
- Each package must be labeled with a lithium battery handling label.
- Limitation of weight:

Quantity per package for both Passenger Aircraft and Cargo Aircraft can only have 10Kg in gross weight.

- Overpacks: Individual packages each complies with the requirements of part 1 may be placed in an overpack. An over-pack must be marked with the Word "Overpack" and labeled with the lithium battery label, unless the labels on the package inside the overpack are visible.

By complying with the requirements specified above, Lithium ion cells and batteries are not otherwise regulated as Dangerous Goods.

Lithium ion cells or batteries manufactured, packaged and shipped by HYB Battery Co., Ltd meet the requirements specified above. Any Lithium ion cells or batteries subsequently repackaged or reshipped are required to meet all of the requirements specified above.

15. REGULATORY INFORMATION

Special requirements should be according to the local regulations.

16. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designate herein.

For more information, please contact:

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