SHENZHEN BAK TECHNOLOGY CO.LTD
MATERIAL SAFETY DATA SHEET

Reference No.: 20110103001

Issued date: Jan. 02, 2011

1. Chemical Product and Company Identification

Product Identification:

Trade Name: Lithium polymer rechargeable battery

Model: all prismatic type of Lithium polymer rechargeable battery

Manufacture information:

Manufacturer: SHENZHEN BAK TECHNOLOGY CO., LTD

No.1706,TIANAN CYBER TIMES TOWN,TIANAN CYBER PARK,CHEGONGMIAO,FUTIAN,SHENZHEN ,CHINA

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2 .Composition Information on Components

CAS#	Components	Approximate Percent of Total Weignt	EINECS
91728-14-2	Aluminum	2-%10	231-072-3
91728-14-2	Aluminum(Various Forms)	5-%15	231-072-3
82600-58-8	Carbon(Various Forms)	10-30%	231-153-3
7440-50-8	Copper	5-15%	231-159-6
12190-79-3	Lithium Cobalt Cobalt Oxide	20-40%	235-362-0
7790-69-4	lithium Salts	1-5%	224-772-5
7440-02-0	Nickel	0.5-5%	231-111-4
102-09-0	Organic Carbonate	10-25%	203-005-8
9002-88-4	Polymer	3-10%	201-622-7

The materials contained in battery may only become a hazard if the battery or the cell disitegrated or if the battery is physicallyor electrically abused.

3. Physical and Chemical Properties

3.1physical

The lithium Polymer Rechargeable Battery in this Material Safety Data sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer.

Under normal conditions of use, the solid electrode materials and Get electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact.

3.2 Chemical

Classification of dangerous substances contained into the product as per directive 67/548/EF

Substance		Melting point	Boiling point	Classification			
CAS N°	Chemical symbol			Exposure limit	Indication Of danger	Special risk(1)	Safety advices(2)
12190-79-3	LiCoO2	>1000℃	N/A	0.1mg/m3 OSHA		R22 R43	S2 S22 S24 S26 S36 S37 S43 S45

EC 96-49-1 DMC: 616-38-6 DEC: 105-58-8	Organic Solvents (EC-DMC DEC)	EC:38℃ DMC:4℃ DEC:-43℃	EC: 243℃ DMC: 90℃ DEC: 127℃	None establish- ed OSHA	Flammable	R21 R22 R41 R42/43	S2 S24 S26 S36 S37 S45
21324-40-3	LIPF6	N/A(decomposes At 160℃)	N/A	None establish- ed OSHA	Irritant Corrosive	R14 R21 R22 R41 R43	S2 S8 S22 S24 S26 S36 S37 S45

1- Nature of special risks:

R14 Reacts with water.

R21 Harmful in contact with skin.

R22 Harmful if swallowed.

R41 Risk of serious damage to the eye.

R42/43 May cause sensitization by inhalation and skin contact.

R43 May cause sensitization by skin contact.

2- Safety advices:

S 2 Keep out of reach from children.

S 8 Keep away from moisture.

S22 DO not breathe dust.

S24 Avoid contact with skin.

S26 In case of contact with eyes ,rinse immediately with plenty of water and medical attention .

S36 Wear suitable protective clothing.

S37 Wear suitable gloves.

S45 In case of incident ,seek medical attention.

R42/43 May cause sensitization by inhalation and skin contact.

R43 May cause sensitization by skin contact.

4.Emergency and First Aid Information.

In case of contacting the materials from a damaged or ruptured cell or battery:

Eye contact: Washing immediately with plenty of water and soap or for at least 15 minutes. Get medical attention .

Skin Contact: Washing immediately with water an soap.

Inhalation of Vented Gas: Remove to fresh air . Get medical attention.

Ingestion: Get medical attention immediately.

5.Fire and Explosion Date

Extinguishing Media: Dry chemicals, water.

Fire-fighting procedure:

Use self-contained breathing apparatus and protective clothing.

Unusual fire and Explosion Hazards：

Toxic gases (HF,PF6)will be formed if cells or battery are involved in a fire.

Cells or battery may flame or leak potentially hazardous vapors if exposed to excessive heat , fire or veer-voltage conditions ,Damaged or opened cells or batteries may result in rapid heat and the release or flammable vapors.

6.Accidental release measures

The material contained within the batteries would only be expelled under abusive conditions. Using shovel or broom ,cover

battery or spilled substance with dry sand or vermiculite, place in approved container (after cooling if necessary)and dispose in accordance with local regulations.

7. Storage and Handling /Use

7.1 Do not store batteries in a manner that allow s terminals to short circuit .

7.2 Do not place batteries near heating sources, nor exposed to direct sunlight for long periods.

Elevated temperatures can result in reduced battery service life .

7.3 Charging Battery

Use only approved chargers and procedures . Improperly charging a cell or battery may cause the cell or battery to flame or damage.

7.4 Battery Disassembly

Never disassemble a battery

Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of any vapors that may be emitted.

7.5 Battery Short Circuit

Do not short-circuit a battery. A short circuit can result in over-heating of the terminals and provide an ignition source.

More than a momentary short circuit will generally reduce the cell or battery service life and can lead to ignition of surrounding materials or materials within the cell or battery if the seal Integrity is damaged.

Extended short-circuiting creates high temperature in the cell and at the terminals. Physical Contact to high temperatures can cause skin burns. In addition, extended short-circuit may cause the cell or battery to flame.

Avoid reversing cell polarity within a battery assembly. Reversing cell polarity may cause the cell or battery to flame or to emit gases.

7.6 Mixed batteries and types

Avoid to use old and new cells or cells of different sizes; different chemistry or types in the same battery assembly.

8. Exposure Controls/Personal Protection

Respiratory protection: Not necessary under normal use. In case of battery rupture ,use self-contained full-face respiratory equipment.

Hand protection: Not necessary under normal use. U se Viton rubber gloves if handling a leaking Or ruptured battery.

Eye protection: Not necessary under normal use. Wear safety goggles or glass with side shields if handling a leaking or ruptured battery.

Skin protection: Not necessary under normal use. Use rubber apron and protective working in case of handling of a ruptured battery.

9. Cell Properties

9.1 Appearance: (Physical shape and color as supplied)Metal squares, hermetically sealed and fitted with an external plastic box.

9.2 Temperature range:

Discharg:-20_+60℃

Charging:-0_+45℃

Storage:-20_+45℃ (for less than I month); -20_+35℃(for less than 6 month)

9.3 Specific energy: ≈135 Wh/kg(Note: Wh=Nominal voltage x Rated Ah as defined in IEC standard N° 285.kg= Average battery weight)

9.4 specific energy: ≈300Wh/kg

9.5 Mechanical resistance: As defined in relevant IEC standard

9.6 Other: -----

10. Stability and Reactivity

Conditions to avoid: Heat above 70℃ or incinerate. Deform, mutilate, crush, pierce, disassemble. Shot circuit.

Prolonged exposure to humid conditions.

Hazardous decomposition products: Corrosive /Irritant Hydrogen fluoride (HF) is produced in case of reaction of lithium hexafluorophosphate (LiPF6) with water. Combustible vapors and formation of Hydrogen fluoride (HF)and phosphorous oxides during fire.

11.Toxological Information

AEngengy rechargeable Li-Ion polymer batteries do not contain toxic materials.

12.Ecological Information .

When properly used or disposed AEenergy rechargeable li-Ion polymer batteries do not present environmental hazard.

13. Disposal Procedures

AEenergy Li-Ion Polymer cells and batteries contain no toxic metals, only naturally occurring trace elements. It is advisable to consult with local authorities asDisposal regulations may very dependent on location.

14. Transportation

For the international transport of lithium batteries, they must comply with these regulations: the International Maritime Dangerous Goods (IMDG) Code by International Maritime Organization (IMO), Dangerous Goods Regulations (DGR) by International Air Transport
Association (IATA) and Technical Instructions for the Safe Transport of Dangerous Goods by Air
(TI) by International Civil Aviation Organization (ICAO). These regulations are based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.
Lithium batteries which meet the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3) could be transported by air and by sea as ordinary goods, otherwise should be transported according to Class 9, Packing Group 1 hazardous goods.
According to UN classification: However this product's shipping name is "lithium ion batteries"(or "Lithium ion Batteries packed with equipment" or "Lithium ion Batteries contained
in equipment"), it is not recognized as "DANGEROUS GOODS" when its transport condition accords with "packing instruction 965 section II of IATA-DGR"(or "Packing instruction 966 section II" or "Packing instruction 967 section II") or "special provision 188 of IMO-IMDG Code".

1. For lithium ion batteries, UN ID number is 3480. For lithium ion batteries contained in equipment or lithium ion batteries packed with equipment, UN ID number is 3481.
2. The consignment should be fully described by proper shipping name and packed, marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of the IATA 52nd Effective 1 January 2011, Dangerous goods regulation and all applicable carrier and government regulations.
3. For transported by air, Lithium-ion Cells/Batteries shipped as "Not Restricted" Cargo: Must comply with Part II of PI965-PI967 accordingly; 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 (marked by manufacturer),
4. Each consignment must be accompanied with a document such as an air waybill with an indication. For those Lithium ion cells/ batteries contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for BAK cells is 86-755-83475268
5. Quantity per package shall not exceed 10 kg.
6. Each package must be capable of withstanding a 1.2m drop test in any orientation without damage of cells or batteries contained therein.
7. Lithium batteries which meet the requirements of A154 could be transported by air, and the batteries manufactured by BAK meet these requirements.(A154 Lithium batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.)
8. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit.
9. Transport condition should accord with "special provision 188 of IMO-IMDG Code".

Section 15 Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

_____ hazardous _√_ Non-hazardous

Section 16 Other Information

This information is not effective to all the batteries manufactured by BAK. This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. BAK doesn't assume responsibility for any damage or loss because of misuse of batteries. Users should grasp the correct use method and be responsible for the use of batteries.