

**BYD MATERIAL SAFETY DATA SHEET****PRODUCT NAME: LITHIUM ION BATTERY****1. Information of Manufacturer**

Manufacturer Name BYD LITHIUM BATTERY CO.,LTD.	Telephone Number for Information +86 755 89888888
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**2. HEALTH HAZARD INFORMATION**Effects of Overexposure

Eye Effects: In the case of a fire or cell rupture the electrolyte solution inside battery is corrosive to eye tissue and may cause eye irritation or burning .

Skin Effect: Contact with electrolyte solution inside battery may cause serious burns to skin tissues. Contact with lithium cobalt oxide may cause result in allergic skin sensitization (rash).

Ingestion: Ingestion of electrolyte solution causes tissue damage to throat area and gastro/respiratory tract. Ingestion of cobalt and cobalt compounds are considered to be possible human carcinogen(s).

Inhalation: No exposure possible except in the case of fire or abuse. Breathing of the mists, vapors of the electrolyte solution inside battery or fumes may irritate the nose, throat and lungs or fumes may irritate the nose throat and lungs.

**3. EMERGENCY FIRST AID**Battery Electrolyte:

Eye Contact: Flush with plenty of water for at least 15 minutes if abuse causes safety vents to activate. Get immediate medical attention.

Skin Contact: Remove contaminated clothing and flush effected areas with plenty of water for at least 15 minutes. Wash with soap and water.

Ingestion: Do not induce vomiting. Dilute by giving water. If available give several glasses of mild. Get immediate medical attention. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. Give oxygen or artificial respiration if needed. Get immediate medical attention.

**4. REACTIVITY DATA**

Incompatibilities: Aluminum, Copper, Nickel and other active metals, chlorinated and aromatic hydrocarbons, nitro-carbons, halocarbons.

Hazardous Decomposition products: None.

Hazardous Polymerization will not occur.

## 5. SPECIAL PROTECTION INFORMATION

Engineering controls: Investigate engineering techniques to reduce exposures use with adequate ventilation a Recommended personal protective Equipment

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.

Eye 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

Hand and Protection: Minimize skin contamination by following good industrial hygiene practices Wearing protective gloves is recommended Wash hands and contaminated skin thoroughly after handling.

Special clothing: Rubber gloves.

Other protective equipment: Rubber apron or equivalent if exposure to electrolyte solution is likely.

## 6. FIRE FIGHTING MEASURES

**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.

**Self-ignite Temperature**: No Data.

**Flammability Limits in Air, Lower, % by Volume**: 1.4

**Flammability Limits in Air, Upper, % by Volume**: 11

## 7. Ingredients

Composition	Wt%
Lithium Cobalt Oxide	30-40
PVDF	0.5-1.5
Carbon	12-20
PTFE	0.5-1.5
Electrolyte(EC/EMC/DEC/1molLiPF <sub>6</sub> )	12-20
PP+PE	1.0-5.0
Copper	9-18
Aluminum	16-28
Nickel	0.1-1.0

**8. PHYSICAL PROPERTIES**

Boiling Point:	Not applicable	Melting pointing: Not applicable
Vapor Pressure:	Not applicable	Vapor Density: Not applicable
Specific Gravity:	1.18-1.22(electrolyte)	Evaporation Rate: Not determined
Solubility in water: Electrolyte solution is partial		
REMAINDER: INSOLUBLE		

**9. SPILL MANAGEMENT PROCEDURES**

Procedure for Release and Spill:

Sweep up and place in a suitable container, Dispose or waste according to all local, state and Federal Laws and Regulations.

Before cleanup measures begin, review the entire MSDS with particular attention Potential Health Effects; and on Recommended Personal Protective Equipment.

**10. DISPOSAL INFORMATION**

Prevention of user exposure : Not necessary under normal use.

Prevention of fire and explosion : Not necessary under normal use.

Precaution for safe handling : Do not damage or remove the external tube. Specific safe handling advice : 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. In the case of charging, use only dedicated charger or charge according to the conditions specified by BYD.

**11. PRECAUTIONS AND COMMENTS**

These cells and batteries manufactured from them may be highly charged and are capable of high-energy discharge. Care should be taken to handle cells properly to avoid shorting or misuse that will result in rapid uncontrolled electrical, chemical, or heat energy release.

Do not short circuit---may cause burns.

Do not break open cell.

**12. Storage Information**

Storage conditions (suitable, to be avoid) : Avoid direct sunlight, high temperature, high humidity. Store in cool place (temperature : -20 ~ 35 degree C, humidity : 45~85%). The cells and batteries shall be protected from short circuit and protected from movement that could result in short circuit.

**13. Ecological Information**

N/A

**14. Disposal Method**

Disposal of batteries comply with government regulations.

**15. Transportation Information**

Lithium Ion batteries being transported by air, by sea, or by truck shall be protected from short circuit and protected from movement that could result in short circuit. 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 water, And must be protected from short-circuiting and protected from movement that could lead to short-circuiting. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to Section 12-STORAGE INFORMATION also.

BYD sealed Lithium Ion batteries are considered to be "dry cell" batteries and are not subject to dangerous goods regulation for the purpose of transportation by the U.S. Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) or the International Maritime Dangerous Goods regulations (IMDG).

Codes and classifications according to international regulations for transport Air  
IATA-DGR : special provision A45

The UN classification number : Class 9 3090

However, since it corresponds to special provision A45 of IATA-DGR, this battery cell can be conveyed normally.

Production of MSDS proving UN manual of Tests and Criteria, part III, sub-section 38.3 is met on MSDS.

**16. Regulatory Information**

Special requirements shall comply with local regulations.

**17. Other Information**

The data in this MSDS relates only to the specific material designed herein.

**18. Measure for fire extinction**

In case of fire, it is permitted to use any class of extinguishing medium on those batteries or the packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

Last Date Revised: 2008/02/28

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