

Material Safety Data Sheet

According to EU2001/58/EC

Released Date: Jan. 13, 2014

1. PRODUCT AND COMPANY IDENTIFICATION

-Product code : Polymer Li-ion Battery

-Model No. : 453040

-Nominal Voltage: : 3.7V

-Capacity : 500mAh

-Company Name : SHENZHEN ZE NENG TECHNOLOGY CO.,LTD

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2. COMPOSITION /INFORMATION ON INGREDIENTS:

Information about the chemical nature of product:

Common chemical name /General name	CAS number	Concentration /	Classification and hazard labeling
Lithium Cobaltite (LiCoO ₂)	12190-79-3	20-50%	-
Iron	7439-89-6	10-15%	-
Aluminum	7429-90-5	2-7%	-
Graphite	7782-42-5	10-15%	-
Copper	7440-50-8	5-10%	Sensitization of the skin group No.2
Organic electrolyte	-	10-20%	Inflammable liquid
Poly-(4,4'isopropylidene diphenyl carbonate)	25971-63-5	70.0 % <	
Proprietary ingredients		7.0 >	

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3. HAZARDOUS INGREDIENTS

For the battery cells, chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous material's leakage. However, if exposed to a fire, added and chemical shocks, decomposition, added electric stress by misuse, the gas release vent will be operated. The battery pack case will be breached and extreme, hazardous materials may be released. Moreover, if heated strongly by the surrounding fire, acid gas may be emitted.

4. HEALTH HAZARD DATA

Under normal conditions of use, the battery is hermetically sealed.

- Ingestion: Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.
- Inhalation: Contents of an open battery can cause respiratory irritation. Inhalation of vapors may cause irritation of the upper respiratory tract and lungs. Provide fresh air and seek medical attention.
- Skin Contact: Contents of an open battery can cause skin irritation and/or chemical burns. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.
- Eye Contact: Contents of an open battery can cause severe irritation and chemical burns. 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.

Note: Acetylene black and cobalt compounds are listed as possible carcinogens by the International Agency for Research on Cancer (IARC).

5. FIRE AND EXPLOSION HAZARD DATA

If fire or explosion occurs when battery are on charge, should shut off power to charger.

In case of fire where lithium ion battery is present, flood the area with water. If any battery is burning, water may not extinguish them, but will cool the adjacent battery and control the spread of fire. CO₂, dry chemical, and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium ion battery. Burning battery will burn them out. Virtually all fires involving lithium ion battery can be controlled with water. When water is used, however, hydrogen gas may be evolved which can form an explosive mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

Fire fighters should wear self-contained breathing apparatus. Burning lithium ion battery can produce toxic fumes including HF, oxides of carbon, aluminum, lithium, copper, and cobalt. Volatile phosphorus pentafluoride may form at a temperature above 230° Fahrenheit.

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6. SPECIAL PROTECTION INFORMATION:

-Ventilation Requirements:	Not necessary under normal conditions.
-Respiratory Protection:	Not necessary under normal conditions.
-Eye Protection:	Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.
-Gloves:	Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.
-Open Battery Storage:	Battery should not be opened. Should a cell become disassembled, the electrode should be stored in a fireproof cabinet, away from combustibles.

7. HANDLING AND STORAGE

-Handling: Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include jumbled battery in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of battery in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery. Should an individual cell within a battery become ruptured, do not allow contact with water.

-Storage: The lithium ion battery should be between 25% and 75% of full charge when stored for a long period of time. Store in a cool, dry, well ventilated area. And temperature above 100 degree can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames.

8. CHARGING AND LABELING

Charging: This battery is made to be charged many times. Use an Energizer approved battery charger. Never use a modified or damaged battery charger. A backup charge termination based on time is recommended to prevent overcharging. The charging temperature should be between -20° C and 60° C (-4° F and 140° F). The battery pack will normally warm during charging.

Charging Voltages and Currents:

Charging voltages are prevented from exceeding the specified limits by an internal battery protection circuit. Never use a battery that shows signs of a damaged protection circuit or broken case. (Such damage to the protection circuit may be indicated by voltages at the battery terminals outside of their specified ranges.) Adhere to all specified charging and discharging voltages and currents. Do not use battery if its voltage drops below the specified minimum voltage.

Labeling: If the ATL label or package warnings are not visible, it is important to provide a package and/or device label stating:

WARNING: CHARGE ONLY WITH SPECIFIED CHARGERS ACCORDING TO DEVICE MANUFACTURER'S INSTRUCTIONS. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE, OR SHORT CIRCUIT - MAY IGNITE, EXPLODE, LEAK, OR GET HOT CAUSING PERSONAL INJURY.

Disposal: Dispose in accordance with all applicable federal, state and local regulations.

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9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance

Physical stat : Solid
Form : Rectangle
Color : Metallic color (without tube)
Odor : No odor

- pH : N/A

- Specific temperatures/temperature ranges at which changes in physical state occur

- Flash point : N/A

- Explosion properties : N/A

- Density : N/A

- Solubility with indication of the solvent(s): Insoluble in water

10. STABILITY AND REACTIVITY

Good stability at standard temperature: When the battery is charging or discharge, the circumstance temperatures should not above 60° C.

This product has no significant reactivity hazard.

Reactivity: Avoid contact with water and acids.

Hazardous decomposition products: If plastic enclosure and Al foil of battery is damaged, the battery should avoid to contact strong oxidizer, acids and high temperature, and the electrolyte will be formed HF.

11. TOXICOLOGICAL INFORMATION

Under normal conditions of use, the battery is toxicological sealed. So void to open and damage battery directly.

12. ECOLOGICAL INFORMATION

If the battery is scrapped, it should be selected and disposed by professional company.

13. DISPOSABLE CONSIDERATIONS

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

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14. TRANSPORT INFORMATION

The battery models have aggregate equivalent lithium content below the 8g. The Li-ion Battery had passed the test UN 38.3 and are classified as non-dangerous goods; Concorde's batteries comply with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Li-ion Battery.

No	ITEMS	RESULT	REMARKS
1	Altitude simulation	Pass	Test 1 to 5 must be conducted in sequence on the same cell or battery
2	Thermal test	Pass	
3	Vibration	Pass	
4	Shock	Pass	
5	External short circuit	Pass	
6	Impact	Pass	
7	Overcharge	Pass	Only battery do need this test item
8	Forced Discharge	Pass	

The LI-ION BATTERY according to NEW PACKING INSTRUCTION Section II 965-967 of IATA DGR 55th Edition for transportation. Lithium-ion batteries can be treated as " Non-dangerous goods" under the United Nations Recommendations on the Transport of Dangerous Goods, Special Provision 188, provided that packaging is strong and prevent the products from short-circuit.

With regard to 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.
- 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 Transportations' (DOT) Research and Special Programs Administration (RSPA)

15. REGULATORY INFORMATION

See ACGIH exposure limits information as noted in Section3.

US: This MSDS meets/exceeds OSHA requirements.

International: This MSDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard.

16. OTHER INFORMATION

The information contained herein is furnished without warranty of any kind. Users should consider this data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information form all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

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