

# Material Safety Data Sheet

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## SECTION 1- PRODUCT IDENTIFICATION

**Product name:** Lithium Ion Rechargeable Battery

**Model:** LR1865BI

**Nominal Voltage:** 3.6V

**Nominal Capacity:** 5.4WH

**Designated for recharge:** Yes

## SECTION 2-MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS-Chemical Name and Common Names	CAS#	OSHA PEL	ACGIH TLV	%wt
Metal Oxide	---	---	---	20-30%
Aluminum	7429-90-5	15 mg/m3 TWA	10mg/m3 TWA	4-8%
Graphite Carbon	7782-42-5	5 mg/m3 TWA	2 mg/m3 TWA	10-15%
Copper	7440-50-8	0.1 mg/m3 TWA	0.2 mg/m3 TWA	13-20%
Organic electrolyte	---	None established	None established	5-15%

## SECTION 3- HAZARDS IDENTIFICATION

Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion.

The batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacture. Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact, Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leadsto the activation of safety valves and or the rupture of the battery containers. Electrolyte leakage or battery vent explosion/fire may follow, depending upon the circumstances.

## SECTION 4- FIRST-AID MEASURES

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 Absorption:** Ethylene carbonate, diethyl carbonate and dimethyl carbonate may be absorbed through the skin causing localized inflammation.

**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).

## SECTION 5- FIRE-FIGHTING MEASURES

If fire or explosion occurs when battery are on charge, 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. CO<sub>2</sub>, 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.

### **SECTION 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.

### **SECTION 7- HANDLING & 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:

Store the battery at ambient temperature in clean environment without chemical vapor nor excessive humidity. And temperature above 80 degree can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames.

### **SECTION 8- EXPOSURE CONTROL/PERSONAL PROTECTION**

Personal Protective Equipment

Respirator : In operations where dusts are generated, use a NIOSH approved respirator that has been selected by a technically qualified person for the specific work conditions.

Eye Protection: Wear safety glasses with side shield (or goggles).

Skin Protection: Wear rubber gloves and normal work clothing.

Other: Eye wash, washing facilities, safety shower

### **SECTION 9- PHYSICAL & CHEMICAL CHARACTERISTICS**

Appearance : Cylindrical Shape

Odour : If leaking, smells of medical ether

PH : No applicable as supplied

Flash Point : No applicable unless individual components exposed

Flammability : No applicable unless individual components exposed

Relative Density : No applicable unless individual components exposed

Solubility(Water) : No applicable unless individual components exposed

Solubility(Other) : No applicable unless individual components exposed

### **SECTION 10- PHYSICAL HAZARD(STABILITY & REACTIVITY)**

Stability: Stable

Do not heat or incinerate the battery, Never impact, pierce or crush the battery.

Do not disassemble or modify the battery.

Do not charge the battery under high temperature conditions such as near a fire or in the direct sunlight.

Do not short-circuit the battery by connect the positive and negative terminals with a metal material.

Reactivity: Avoid contact with water and acids.

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

## SECTION 11- TOXICOLOGICAL INFORMATION

Irritancy: Electrolyte is corrosive. Causes chemical burns on contact with skin. Inhalation of fine mist or vapors are irritating to the respiratory system. Prolonged contact with the skin or mucous membranes may cause irritation.

Sensitization: No information is available at this time.

Carcinogenicity: No information is available at this time.

Reproductive toxicity: No information is available at this time.

Teratogenicity: No information is available at this time.

Mutagenicity: No information is available at this time.

## SECTION 12- ECOLOGICAL INFORMATION

Biological resolvability: hard to biological resolve.

## SECTION 13- DISPOSAL CONSIDERATION

Dispose in accordance with appropriate Regulations. Opened cells should be treated as hazardous waste. Burn the waste in safety furnace and recycle Co, Cu, Al.

## SECTION 14- TRANSPORT INFORMATION

BASE ON IATA DANGEROUS GOODS REGULATIONS 24TH EDITION (ENGLISH) , IF CELLS OR BATTERIES DELIVERED IN AIR, there must be transported in accordance with the requirement of packing instruction 965. The battery model listed has aggregated equivalent lithium content below the 100WH requirement. Cell is in compliance with inner package, package weight, marking and label requirement declared in packing instruction 965. At the same time, cell conforms to requirement declared in the International Maritime Dangerous Goods (IMDG) code (2002 edition). However, if the lithium-ion battery are packed with or contained in an equipment, then it is the responsibility of the shipper to ensure that the consignment are packed in compliance to the latest edition of the IATA Dangerous Goods Regulations Part 1 section of either Packing Instruction 966 and 967 in order for that consignment to be declared as NOT RESTRICTED (non-hazardous/non-Dangerous).

The battery model listed has been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1-T8) on the Transport of Dangerous Goods Model Regulations and Manual of

Tests and Criteria 38.3. The product is safe for both air and maritime transportation.

## SECTION 15- REGULATORY INFORMATION

See ACGIH exposure limits information as noted in Section 2.

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 Z400.1-1993

## SECTION 16- OTHER INFORMATION

The information in the MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The condition or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable