

# MATERIAL SAFETY DATA SHEET

According to the European directive 2006/66/EC

Date : 2010.01.12

Rev PB-ST-1008

## 1. Chemical product

Name: Camelion lithium button cell.

Manufacturer: Camelion Battery Co. Ltd

Address: Unit 705-708, Cyber Timers Tower A, Tian'an Cyber Park, Shenzhen, China

Tel: 0755-83618088

Chemical System: Lithium- Manganese Dioxide

Nominal Voltage: 3.0V

Designated for Recharge: No

## 2. Composition /information on ingredients:

**IMPORTANT NOTE:** The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Hazardous components

Item	%/W <sub>t</sub>	TLV(ACGIH)	PEL(OSHA)
Carbon Black	0-1	3.5 mg/m <sup>3</sup> TWA	3.5 mg/m <sup>3</sup> TWA
1,2-Dimethoxyethane	0-6	None established	None established
1,3-Dioxolane	0-8	None established	None established
Graphite	0-3	2 mg/m <sup>3</sup> TWA (respirable fraction)	15 mg/m <sup>3</sup> TWA (total dust) 5 mg/m <sup>3</sup> TWA (respirable fraction)
Lithium or Lithium Alloy	1-6	None established	None established
Lithium Perchlorate	0-3	None established	None established
Lithium Trifluoromethanesulfonate	0-3	None established	None established
Lithium Trifluoromethanesulfonimide	0-3	None established	None established
Manganese Dioxide	12-42	0.2 mg/m <sup>3</sup> TWA (as Mn)	5 mg/m <sup>3</sup> Ceiling (as Mn)
Propylene Carbonate	0-8	None established	None established

## 3. Fire and explosion hazard data

In case of fire where lithium batteries are present, apply a smothering agent such as METL-X, sand, dry ground dolomite, or soda ash, or flood the area with water. A smothering agent will extinguish burning lithium batteries. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving lithium batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended.

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Fire fighters should wear self-contained breathing apparatus. Burning lithium-manganese dioxide batteries produce toxic and corrosive lithium hydroxide fumes.

## 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. CALL doctor collect or get to the hospital immediately.

**Inhalation:** Contents of an open battery can cause respiratory irritation. Cadmium oxide fumes can cause allergic pulmonary asthma. Provide fresh air and seek medical attention.

**Skin contact:** Contents of an open battery can cause skin irritation and/or chemical burns. Cobalt, cobalt compounds, nickel and nickel compounds can cause skin sensitization and an allergic contact dermatitis. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or 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:** Nickel, nickel compounds, cadmium, cadmium compounds, cobalt, and cobalt compounds are listed as possible carcinogens by International Agency for Research on Cancer (IARC) or National Toxicology Program (NTP).

## 5. Precautions for safe handling and use

**Storage:** Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

**Mechanical containment:** If potting or sealing the battery in an airtight container is required, consult your Camelion Battery Company representative for precautionary suggestions. Batteries normally evolve hydrogen which, when combined circuits, high temperature, or static sparks can cause an ignition.

Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.

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**Handling:** Accidental short circuit for a few seconds will not seriously affect the battery. However, this battery is capable of delivering very high short circuits. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, metal covered tables, or metal belts used for assembly of batteries in devices.

If soldering or welding to the battery is required, use of tabbed batteries is recommended. If this cannot be done, consult your Camelion Battery Company representative for proper precautions to prevent seal damage or short circuit.

Do not open battery. The negative electrode material may be pyrophoric. Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible. This is much more likely to happen if the electrode is removed from its metal container. There can be a delay between exposure to air and spontaneous combustion.

**Charging:** This battery is manufactured in a charged state. It is not designed for recharging. Recharging can cause battery leakage or, in some cases, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards.

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

WARNING: FIRE, EXPLOSION, and BURN HAZARD. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE, HEAT ABOVE 100 ° C (212 ° F), EXPOSE CONTENTS TO WATER, RECHARGE, PUT IN BACKWARDS, MIX WITH USED OR OTHER BATTERY TYPES - MAY EXPLODE OR LEAK AND CAUSE PERSONAL INJURY.

GENERAL EXCEPTION: At a minimum use Camelion label or package warnings.

Where accidental ingestion of small batteries is possible, the label and/or immediate packaging should also include:

WARNING: (1) KEEP AWAY FROM SMALL CHILDREN. IF SWALLOWED, PROMPTLY SEE DOCTOR; HAVE DOCTOR PHONE COLLECT. In addition to the appropriate warning copy shown above.

Some photo lithium batteries use the following warning:

BATTERY CAN EXPLODE OR CAUSE BURNS IF DISSASSEMBLED, RECHARGED, OR EXPOSED TO WATER, FIRE, OR HIGH TEMPERATURE.

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

When generated as a waste, these batteries may be regulated by the Resource Conservation and Recovery Act (RCRA) as a D006 (cadmium) hazardous waste.

## 6. Special protection information

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**Ventilation requirements:** Not necessary under normal conditions.

**Respiratory protection:** Not necessary under normal conditions. A respirator should be worn during reclamation operations.

**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. REGULATORY INFORMATION

In general, the transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association and International Maritime Dangerous Goods Code. The batteries must meet the following criteria for shipment:

- For air shipments, meet the requirements listed in Special Provision A51 of the International Air Transport Association Dangerous Goods Regulations
- With limited exceptions, the transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to December 15, 2004 Federal Register (Hazardous Materials; Prohibition on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) for additional rules that became effective on December 29, 2004

By complying with the requirements specified above, Lithium Batteries are not otherwise regulated as Dangerous Goods.

Lithium Batteries manufactured, packaged and shipped by Camelion Battery Manufacturing, Inc. meet the requirements specified above. Any Lithium Batteries subsequently repackaged or reshipped are required to meet all of the requirements specified above.

## 8. UN CLASS

Even classified as lithium batteries and cells (UN3090). 2010 IATA Dangerous Goods Regulations 51<sup>st</sup> edition Packing instruction 968 Part 1 or 2 is applied. The product is handled as Non-Dangerous Goods by meeting the following requirements.(1)

Lithium batteries and cells offered for transport are not subject to other additional requirements of the UN Regulations if they meet the following(1)(3)

1. for cell, the Watt-hour rating is not more than 20WH
2. for batteries, the Watt-hour rating is not more than 100WH

The Watt-hour rating must be marked on outside of the battery case except those manufactured before 1 January 2009 which may be transported without this marking until 31 December 2010

3. each cell or battery is of the type proven to meet the requirements of each test

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in the UN Manual of tests and Criteria Part subsection 38.3

The cells and packaging meet the requirements of IMDG-Code 34. Amendment, special requirement No. 188.

## 9. Other INFORMATION

The information on this Material Safety Data Sheet (MSDS) was obtained from current and reputable sources. However, the data is provided without any warranty; expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to assume liability on loss, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.