Camelion®
深圳市飞狮电池有限公司 Camelion Battery Co., Ltd.
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## Section 1 - Product and Company Identification

| Product Name: Lithium Manganese Dioxide Batteries(CR) | Sizes: All | Date of preparation: 1. 6, 2012 |
|---|---|---|
| Company: Camelion Battery Co. Ltd | | Telephone: (86) 0755-83618088 |
| Address：Unit 705, Cyber Timers Tower A, Tian'an Cyber Park, Shenzhen,china | | Fax: (86)0755-83475720 |

## Section 2 - Composition/Information on Ingredients

| Ingredient | CAS# | Content (wt%) | RTECS# | OSHA PEL ($mg/m^3$) | ACGIN TLV ($mg/m^3$) |
|---|---|---|---|---|---|
| Lithium metal | 7439-93-2 | 1~3 | OJ5540000 | - | - |
| Manganese Dioxide | 1313-13-9 | 14.5~33.5 | OP0350000 | 5 | 5 |
| Graphite | 7782-42-5 | 0.6~1.5 | MD9659600 | - | 2 |
| Carbon Black | 1333-86-4 | 0.9~2.2 | FF5800000 | 3.5 | 3.5 |
| Teflon | 116-14-3 | 1.9~4.5 | KX4025000 | 15 | 10 |
| 1,2-Dimethoxyethane | 110-71-4 | 3.5~6.5 | KI1451000 | - | 3(ppm) |
| Propylene Carbonate | 108-32-7 | 1.2~1.9 | FF9650000 | - | - |
| Lithium Perchlorate | 7791-03-9 | 0.4~0.9 | - | - | - |

## Section 3 - Hazards Summarizing

Routes of Entry: Inhalation: NO Skin: NO Ingestion: YES

Reports of Carcinogenicity: NTP: NO IARC: NO OSHA: NO

Health Hazards Acute and Chronic: These chemicals are in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents. PC is mildly irritating on eye and skin contact. DME is believed to be slightly to moderately irritant. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Effects of Overexposure: Irritation of skin or eyes. Lithium can cause thermal & chemical burns upon contact with skin.

## Section 4 - First-aid Measures

None unless internal materials exposure. If contents are leaked out, observe following instructions

| | |
|---|---|
| Inhalation | Fumes can cause respiratory irritation. Remove to fresh air and consult a physician. |
| Skin | Immediately flush skin with plenty of water. If itch or irritation by chemical burn Persists, consult a physician. |
| Eyes | Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately. |
| Ingestion | If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician. |

## Section 5 - Fire-fighting Measures

| | |
|---|---|
| Extinguishing Media | Extinguisher of alkaline metal fire is effective. Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that lots of lithium batteries are burning in a confined space, use a smothering agent. |
| Fire fighting procedure | Use self-contained breathing apparatus and full protective gear not to inhale harmful gas. |

## Section 6 - Accidental Release Measures

| | |
|---|---|
| Spill release Procedures: | If cell vents or is punctured, ventilate area well. Wear eye and skin protection. Respiratory protection may be necessary in confined spaces. Absorb liquid with suitable material such as sand or clay. Transfer to container for later disposal. |
| Neutralizing Agent: | Not relevant. |

## Section 7- Handling and Storage

Never swallow. Never charge. Never heat. Never expose to open flame. Never disassemble. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never weld the terminal or wire to the body of the battery directly. Never use different batteries together. Never touch the liquid leaked out of battery. Never bring fire close to battery liquid.

Store in cool, dry place.

## Section 8 - Exposure Controls/Personal Protection

Respiratory Protection: SCBA(fire); Full-face respirator with particulate/organic cartridge(spill).

Ventilation: In case of venting, provide as much ventilation as possible.

Protective Gloves: Natural or Butyl rubber gloves.

Eye Protection: Chem workers goggles

Work Hygienic Practices: Avoid exposure, wash hands after handling.

## Section 9 - Physical and Chemical Properties

N/A

## Section 10 - Stability and Reactivity

| | |
|---|---|
| Stability | Stable |
| Incompatibility | Water |
| Hazardous Polymerization | Will not occur |
| Condition to avoid | See section 7 |
| Hazardous Decomposition or Byproducts | Hydrogen |

## Section 11 - Toxicological Information

N/A

## Section 12 - Ecological Information

Do not let the internal ingredients contact water. Avoid emit to the ditch, waste ditch and the earth's surface.

## Section 13 - Disposal

All the lithium battery disposed by certified tools.

## Section 14 - Transport Information

The battery has passed the test of UN38.3 ( No.UN08-0440 ) by Guangzhou Vkan Certification & Testing Institute. The battery is non-restricted goods.

UN numbers and proper shipping names:

UN 3090: Lithium metal batteries

UN 3091: Lithium metal batteries contained in equipment

Lithium metal batteries packed with equipment

Organizations governing the transport of lithium batteries

| Area | Method | Organization | Special Provision |
|---|---|---|---|
| International | Air | IATA, ICAO | Section Ⅱ of PI 968-970 |
| International | Marine | IMO | SP188,SP230,SP310 and SP957 |
| U.S.A | Air, Rail, Road, Marine | DOT | 49 CFR Section 173.185 |

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for lithium batteries shipping.

Ref) Summary of Packing Instruction (IATA Dangerous Goods Regulations 52th Edition)

The minimum requirements necessary to transport as non-restricted goods are as follows:

1) For a lithium metal or lithium alloy cell, the lithium content is not more than 1g. For a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2g.

Our products all accords this standard.

2) Each cell or battery is of the type proven to meet the requirement of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.

3) Each package must be displayed a battery handling label. (Telephone number must be printed for emergency call on the handling label.)

4) Each consignment must be accompanied with a declaration of non-dangerous goods document. (Telephone number must be printed for emergency call on the document.)

5) Each package must be capable of withstanding a 1.2 m drop test.

In addition,

a) Transportation of batteries installed in equipment as non-restricted goods

If each package contains no more than 4 cells or 2 batteries, the requirement is the same as current. But for other cases of cell or battery quantity, the requirements are 1), 2), 3) and 4).

b) Transport of batteries packed with equipment as non-restricted goods. Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied.

c) Transportation of batteries only as non-restricted goods. Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied.

Also the maximum weight of one package is restricted in air transport, 2.5kg or less for lithium metal cells or batteries.

## Section 15 - Regulatory Information

IATA Dangerous Goods Regulations 52th Edition (2012)

ICAO Technical Instructions for the safe transport of dangerous goods by air.

Safety regulations for dangerous chemical goods.

Our products all follows above-mentioned regulations.

## Section 16 - Other Information

If you want further information, please contact Camelion sales representative.