| | |
|---|---|
| Title: Coin Type Lithium ion Rechargeable Battery | Number: RJD2440 |
| Model: *RJD2440* | Rev: 6 (2016.01.04.) |

**MSDS (Material Safety Data Sheet) OF COIN TYPE**

**LI-ION RECHARGEABLE BATTERY**

**MODEL: RJD2440**

**PRESENTED TO :**

| |
|---|
| **Accepted**<br><br>**by: Date:** |

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# MATERIAL SAFETY DATA SHEET
# Lithium-Ion Battery (RJD2440)

## 1 Chemical Product and Company Identification

**Product Identification**
RJD2440 Lithium-Ion Battery

**Manufacturer**
Illinois Capacitor
3757 W. Touhy Ave
Lincolnwood, IL 60712

**Emergency Telephone Number**
Tel : 847-675-1760
Fax : 847-673-2850

## 2 Composition Information

| Hazardous Ingredients | % | CAS Number |
|---|---|---|
| Aluminum Foil | 2-10 | 7429-90-5 |
| Nickel compound (proprietary) | 0-25 | |
| Manganese compound (proprietary) | 0-15 | |
| Cobalt compound (proprietary) | 4-50 | |
| Polyvinylidene Fluoride (PVDF) | <5 | 24937-79-9 |
| Copper Foil | 2-10 | 7440-50-8 |
| Carbon (proprietary) | 10-30 | 7440-44-0 |
| Electrolyte (proprietary) | 10-20 | |
| Stainless steel, Nickel and inert materials | Remainder | N/A |

***Li ion batteries are not manufactured to contain lithium metal and the lithium-equivalent content of batteries is 0.045g per cell (0.3 X 0.150Ah = 0.045g), gross weight is 5.5g per cell.***
***The watt-hour rating of RJD2440 is 0.555Wh (3.7V X 0.150Ah = 0.555Wh)***

## 3 Hazards Identification

**Emergency Overview**
May explode in a fire, which could release hydrogen fluoride gas.
Use extinguishing media suitable for materials burning in fire.

**Primary routes of entry**

| | | |
|---|---|---|
| Skin contact | : | NO |
| Skin absorption | : | NO |
| Eye contact | : | NO |
| Inhalation | : | NO |
| Ingestion | : | NO |

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**Symptoms of exposure**

Skin contact
No effect under routine handling and use.

Skin absorption
No effect under routine handling and use.

Eye contact
No effect under routine handling and use.

Inhalation
No effect under routine handling and use.

Reported as carcinogen
Not applicable

## 4 First Aid Measures

**Inhalation**
Not a health hazard.

**Eye contact**
Not a health hazard.

**Skin contact**
Not a health hazard.

**Ingestion**
If swallowed, obtain medical attention immediately.

**IF EXPOSURE TO INTERNAL MATERIALS WITHIN CELL DUE TO DAMAGED OUTER CASING, THE FOLLOWING ACTIONS ARE RECOMMENDED:**

**Inhalation**
Leave area immediately and seek medical attention.

**Eye contact**
Rinse eyes with water for 15 minutes and seek medical attention.

**Skin contact**
Wash area thoroughly with soap and water and seek medical attention.

**Ingestion**
Drink milk/water and induce vomiting; seek medical attention.

## 5 Fire Fighting Measures

**General Hazard**
Cell is not flammable but internal organic material will burn if the cell is incinerated. Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide.

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**Extinguishing Media**
Use extinguishing media suitable for the materials that are burning.

**Special Firefighting Instructions**
If possible, remove cell(s) from fire fighting area. If heated above 125℃, cell(s) may explode/vent.

**Firefighting Equipment**
Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

## 6 Accidental Release Measures

**On Land**
Place material into suitable containers and call local fire/police department.

**In Water**
If possible, remove from water and call local fire/police department.

## 7 Handling and Storage

**Handling**
No special protective clothing required for handling individual cells.

**Storage**
Store in a cool, dry place.

## 8 Exposure Controls / Personal Protection

**Engineering controls**
Keep away from heat and open flame. Store in a cool dry place.

**Personal Protection**

Respirator
Not required during normal operations. SCBA required in the event of a fire.

Eye/face protection
Not required beyond safety practices of employer.

Gloves
Not required for handling of cells.

Foot protection
Steel toed shoes recommended for large container handling.

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## 9 Physical and Chemical Properties

| State | Solid |
|---|---|
| Odor | N/A |
| PH | N/A |
| Vapor pressure | N/A |
| Vapor density | N/A |
| Boiling point | N/A |
| Solubility in water | Insoluble |
| Specific gravity | N/A |
| Density | N/A |

## 10 Stability and Reactivity

**Reactivity**
None

**Incompatibilities**
None during normal operation. Avoid exposure to heat, open flame, and corrosives.

**Hazardous Decomposition Products**
None during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

**Conditions To Avoid**
Avoid exposure to heat and open flame. Do not puncture, crush or incinerate.

## 11 Toxicological Information

This product does not elicit toxicological properties during routine handling and use.

| Sensitization | Teratogenicity | Reproductive | Acute toxicity |
|---|---|---|---|
| NO | NO | NO | NO |

If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

## 12 Ecological Information

Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

## 13 Disposal Considerations

California regulated debris
RCRA Waste Code : Nonregulated
Dispose of according to all federal, state, and local regulations.

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## 14 Transport Information

Lithium Ion batteries are considered to be "Rechargeable batteries" and meet the requirements of transportation by the U.S. Department of Transportation(DOT), International Civil Aviation Administration(ICAO).

Hereby We certify that this model of Lithium battery meets the requirements each test in the UN Manual of Tests and Criteria, Part 3, sub-section 38.3.
Not regulated for Transport under Special Provision 188 of the International Maritime Dangerous Goods Code (IMDG)

Even classified as lithium ion batteries (UN3480), 2016 IATA Dangerous Goods Regulations 57$^{TH}$ edition Packing Instruction 965 Section II is applied.
The Product is handled as Non-Dangerous Goods by meeting the following

Lithium ion cells and batteries offered for transport are not subject to other additional requirements of the UN Regulations if they meet the following ; (1)–(5)

1. for cells, the Watt-hour rating is not more than 20Wh.
2. for batteries, Watt-hour rating is not more than 100Wh.
3. each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria Part 3 subsection 38.3.
4. each cells comply with Special Provision A154.
5. net quantity per package shall not exceed 2.5kg

The product has been evaluated according to the UN Manual of Tests and Criteria.

| No. | Test Item | Criteria | Result |
|---|---|---|---|
| Test 1 | Altitude simulation | -No leakage, venting, disassembly, rupture and no fire.<br>-Measuring mass before/after each test. (If M>5g, less than 0.1%)<br>-Measuring voltage before/after each test. (more than 90%) Pass | Pass |
| Test 2 | Thermal test | | Pass |
| Test 3 | Vibration | | Pass |
| Test 4 | Shock | | Pass |
| Test 5 | External short circuit | -No disassembly, rupture and fire within six hours of this test.<br>-Max. temperature should not exceed 170℃. | Pass |
| Test 6 | Impact / Crush | | Pass |
| Test 7 | Overcharge | -No disassembly and fire within seven days of the test. | No test |
| Test 8 | Forced Discharge | | Pass |

## 15 Regulatory Information

**International safety standards**
The basis cells are approved according to UL1642

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## 16 Other information

**Revision No.**
Rev 0.
Rev 1.
Rev 2.
Rev 3.
Rev 4.
Rev 5.
Rev 6.

**Revision Date**
2012.09.13.
2012.12.28
2013.01.07
2013.05.16
2014.01.22
2015.01.29
2016.01.04

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