

1. Product and Company Identification:

Product Identification:

ENERGY+[®] Brand Lithium (Metal) Battery- Lithium Manganese Dioxide (Li-MnO₂)

| Stock Code & Customer P/N | Cell Manufacture Data | | | Cell Configuration | Nominal Voltage | Lithium Content Grams |
|---------------------------|-----------------------|-----------|-------------|--------------------|-----------------|-----------------------|
| | Mfr. & P/N | Type | UL File No. | | | |
| BR-ACF2P | FDK | 4/5A Size | MH13421 | 2S1P | 6.0 | 1.44 |
| A98I-0031-0011 | CR17450SE | | | | | |

Company Identification:

Fedco Electronics, Inc.
1363 Capital Drive
Fond du Lac, WI 54937

Tel: 1-920-922-6490
Fax: 1-920-922-6750
Email: info@fedcoelectronics.com

Emergency Contact Information:

INFOTRAC
In the United States call: 1-800-535-5053
Outside the United States call collect: 1-352-323-3500

The battery referenced herein is defined as exempt "articles" and is not subject to the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard 29 CFR Subpart 1910.1200(g). This information is provided as a service to our customers.

2. Hazard Identification:

Batteries consist of one or more cells which contain chemical materials 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, explosion or release of hazardous chemical materials. However, if exposed to fire, added mechanical shocks, added electric stress by misuse, the gas release vent will be operated. The battery cell case may be breached at the extreme and hazardous materials may be released including acrid or harmful fumes.

Primary routes of entry: Skin contact, skin absorption, eye contact, inhalation and ingestion:

Skin absorption: No effect normal use, however exposure to electrolyte may cause dermatitis.

Eye contact: No effect under normal use, however electrolyte may damage the cornea.

Inhalation: No effect under normal use, however fumes may irritate the lungs.

Ingestion: No effect under normal uses, however ingestion of the electrolyte may irritate the mouth and lungs and cause nausea.

Reported as carcinogen: Not applicable.

3. Composition / Identification of Ingredients:

The ingredients contained in this lithium metal battery are as follows:

| Lithium-Manganese Dioxide (Li-MnO ₂) | | | |
|--------------------------------------------------|----------------------------------------------|------------|--------------------|
| Common Chemical Name | Chemical Formula | CAS Number | Content - % Weight |
| Lithium | Li | 7439-93-2 | <4% |
| Manganese Dioxide | MnO ₂ | 1313-13-9 | <40% |
| Lithium Perchlorate | LiClO ₄ | 7791-03-9 | <2% |
| Propylene Carbonate | C ₄ H ₆ O ₃ | 108-32-7 | <3% |

4. First Aid Measures:

Inhalation: Not anticipated. If battery is leaking, contents may be irritating to respiratory passages. Remove to fresh air and seek medical attention if necessary.

Skin contact: Not anticipated. If battery is leaking, wash exposed skin with copious quantities of water for 15 minutes. If irritation or pain persists, seek medical attention.

Eye contact: Not anticipated. Do not rub one's eyes. Immediately flush eyes with copious amounts of water for at least 15 minutes. Seek medical attention immediately.

Ingestion: Not anticipated. Contact the National Capital Poison Center (NCPC) at 202-635-3333 (collect) or your local poison center immediately. Lithium coin batteries lodged in the esophagus should be removed immediately.

5. Fire Fighting Measures:

Extinguishing media: Lithium metal batteries are in sealed steel cans and are only flammable if punctured or crushed. A Class D Extinguisher or other smothering agent such as Lith-X, copper powder or dry sand is the most effective way to put out a lithium metal battery fire. However, copious amounts of cold water or water-based foam can be used to cool down burning Lithium metal batteries. Halon type extinguishers are not effective.

Firefighting equipment: For large-scale fires, use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear. Detailed information on fighting a lithium metal battery fire can be found in *Guide 138 (Substances - Water - Reactive)* of the US DOT Emergency Response Guide.

6. Accidental Release Measures:

Place damaged batteries that have cooled into suitable container or sealed plastic bags.

7. Handling and Storage:

Handling:

Do not crush, pierce or expose the battery to excessive physical shock or vibration. Do not short circuit the (+) and (-) terminals with conductive materials such as metal coins, jewelry, metal tables or other cells and batteries. Accidental short-circuiting for a few seconds may reduce the service life of the battery; and batteries with internal fuses will no longer be functional. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin or explode. To minimize risk of short-circuiting, use the packaging provided with the battery or cover the terminals with tape when transporting or storing the battery. Do not disassemble the battery. Lithium metal batteries are not designed to be recharged.

Storage:

Store Lithium metal cells and batteries in a dry, well-ventilated place between temperatures of -20°C and +85°C; and at a relative humidity of 45% to 85%. Storing at temperature above +70°C can result in reduced service life.

8. Exposure Controls and 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 battery.

Foot Protection: Steel toed shoes recommended for handling large pallets.

9. Physical and Chemical Properties:

This section is not applicable. Batteries are contained in sealed solid metal cases.

10. Stability and Reactivity:

Stability: Product is stable under the conditions described in Section 7.

Conditions to avoid: None during normal operation. Avoid exposure to heat above +85° C, open flame, crushing, piercing, deforming, mutilating, short circuit and exposure to long periods of high humidity.

11. Toxicological Information:

This product does not emit toxicological properties during routine handling and use. If battery ruptures, overexposure to internal contents and corrosive fumes may irritate eyes, mucous membranes, skin and lungs. See Section 4.

12. Ecological Information:

Lithium metal battery packs pose no risks to persons, plants or animals.

13. Disposal Considerations:

Lithium batteries are neither listed nor exempted from the EPA hazardous waste regulations as promulgated by the Resource Conservation and Recovery Act (RCRA). The waste code for charged lithium batteries is D003; and the key to disposing of a lithium battery as a non-hazardous waste is to guarantee that it is fully discharged. Once it is discharged it can be disposed of as a non-hazardous waste. However, discharged lithium cells and batteries may still contain a significant amount of unused electrical energy and must be packed for disposal by electrically isolating in plastic bags or other type of insulation. Do not compact for disposal and do not dispose of in fire. Do not incinerate or subject battery cells to temperatures above +85°C. Contact Fedco for instructions if disposing large quantities. Households are exempt from the RCRA hazardous waste guidelines.

14. Transportation Information:

Lithium metal batteries are classified in the International Air Transportation Association (IATA) the Dangerous Goods Regulations as UN3090. This battery may be shipped in compliance with the US Department of Transportation (DOT) Subchapter C, Hazardous Material Regulations if shipped in compliance with 49CFR 173.185 and Special Provision 188.

Batteries may be shipped by ground as provided under Section II of the Packing Instructions and Special Provision 188 described in the United States Code of Federal Regulations, 49CFR Part 172(c)(1).

This battery may be shipped by air in accordance with International Civil Aviation Organization (ICAO) 2013-2014 edition; Section II or Section IB or the IATA of the Dangerous Goods Regulations Packing Instructions PI-968 Section II or Section IB, if they meet the following provisions:

- For single cell batteries the lithium metal content is not more than 1 gram (g) and for multi cell batteries the lithium metal content is not more than 2g.
- Each cell and battery pack must be proven to meet the requirements of the tests in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. (Rev 5)
- The batteries must be shipped in accordance with IATA Packing Instructions 968. Including packaging, special marking and personnel training requirements.
- In the United States all lithium metal battery shipments require a label on the outside of each package with the following statement: *"Lithium Metal Batteries - Forbidden for Transport Aboard Passenger Aircraft"*

The lithium metal battery described in this SDS is of a type proven to meet the requirements of the tests in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. (Rev 5.), and contain no more than 1g of lithium metal in a single cell battery or no more than 2g of lithium metal in a multi cell battery.

For batteries shipped with equipment see PI-969 and for batteries contained in equipment see PI-970 of the IATA Dangerous Goods Regulations. These are classified as UN3091 in the Dangerous Goods Regulations.

15. Regulatory Information:

Non-hazardous and containing no Cd, Hg or Pb.

OSHA Hazard communication standard 29 CFR 1910.1200 (g)

16. Other Information:

The information contained in this Safety data sheet is based on the present state of knowledge and current legislation. This safety data sheet provides guidance on health, safety, environmental and transportation aspects of the product and should not be construed as any guarantee or warranty, either expressed or implied, of technical performance or suitability for particular applications.