

# MATERIAL SAFETY DATA SHEET

## MSDS030

**Ultralife Batteries, Inc.**  
**2000 Technology Parkway**  
**Newark, NY 14513-2175**  
**CAGE Code: 0UU59**

**Emergency Telephone Number:**  
**Chemtrec for Spills, Leaks, Fires**  
**USA 1-800-424-9300**  
**International 703-527-3887**

### SECTION I

### PRODUCT IDENTIFICATION

**Product Name:** Ultralife BA-5390/U Battery (Part Numbers UB0001, UB0002)  
Ultralife BA-5390A/U Battery (Part Number UB0021)  
**Size:** 10 – 3356  
**National Stock Number:** 6135-01-501-0833 (BA-5390/U; UB0001)  
6135-01-517-6060 (BA-5390A/U; UB0021)  
**NATO Stock Number:** 6135-99-485-3034 (BA-5390/U; UB0002)  
**Chemistry System:** Manganese Dioxide/Lithium Metal

### SECTION II

### PRECAUTIONARY LABELING

**Caution:** May leak and /or flame if opened, recharged, connected improperly, or disposed of in fire.

### SECTION III

### HAZARDOUS COMPONENTS

Chemical Name	CAS #	Exposure Limits	Percent of Content
Manganese Dioxide, MnO <sub>2</sub>	1313-13-9	None Listed	41.0 – 55.0
Lithium Metal, Li	7439-93-2	None Listed	2.0 – 4.0
Propylene Carbonate, C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	108-32-7	None Listed	3.0 – 7.0
Ethylene Glycol Dimethyl Ether, C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	110-71-4	5 ppm TWA 1ppm Preg Women	2.0 – 5.0
Shipping Name: 1,2-Dimethoxyethane			
Tetrahydrofuran, C <sub>4</sub> H <sub>8</sub> O	109-99-9	200 ppm TWA	2.0 – 5.0
Lithium Perchlorate, LiClO <sub>4</sub>	7791-03-7	None Listed	1.0 – 3.0

**Important Note:** The materials in this section may only represent a hazard if the integrity of the battery is compromised or if the battery is physically or electrically abused.

Ultralife Batteries, Inc.

MSDS030  
Rev.:   K    
Date:   03/18/05

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**SECTION IV****PHYSICAL AND CHEMICAL PROPERTIES**

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A. N/A

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**SECTION V****FIRE AND EXPLOSION DATA**

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**A. Extinguishing Media**

- Copious amounts of cold water are an effective extinguishing medium for lithium batteries. Do not use warm or hot water.
- Lith-X (Class D extinguishing media) is effective on fires involving only a few cells.
- Do not use CO<sub>2</sub> or Halon type extinguishing potential.

**B. Fire Fighting Procedures**

- Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire.
- Full protective clothing is necessary.
- During water application, caution is advised as burning pieces of lithium may be ejected from the fire.

**C. Unusual Fire and Explosion Hazards**

- Batteries may flame or leak potentially hazardous organic vapors if exposed to excessive heat or fire.
- Fire or excessive heat may produce hazardous decomposition products.
- Damaged or opened batteries can result in rapid heating and the release of flammable vapors. Vapors are heavier than air and may travel along the ground or be moved by ventilation to an ignition source and flash back.

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**SECTION VI****STORAGE PRECAUTIONS**

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- Do not store batteries in a manner that allows terminals to short circuit.
- Batteries should be separated from other materials and stored in a non-combustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.
- Batteries should be stored in a dry area at temperatures no higher than 90°C (194°F). Air conditioning or cooling is not required unless excessively high temperatures above 90°C (194°F) will be encountered. Elevated storage temperatures above 72°C (162°F) can result in reduced battery shelf life and service life, and should be avoided. Batteries should be kept as cool as possible in order to maximize shelf life and service life.

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**SECTION VII****HANDLING/USE PRECAUTIONS**

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**A. Battery Charging**

- Batteries are not designed to be recharged. Charging a battery may result in electrolyte leakage and/ or cause the battery to flame.

**B. Battery Disassembly**

- Never disassemble a battery.
- Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of any vapors that may be emitted.
- In the event of skin or eye exposure to the electrolyte, refer to Section VII, First Aid Information.

**C. Battery Short Circuit**

- More than a momentary short circuit will generally reduce the battery service life.
- Extended short circuiting creates high temperatures in the cell. High temperatures can cause burns in skin or cause the cell to flame.
- Avoid reversing battery polarity within the battery assembly. To do so may cause cell to flame or to leak.

#### **D. Mixed Batteries and Types**

- The use of old and new batteries or batteries of varying sizes and types in the same battery assembly should be avoided. The batteries' electrical characteristics and capabilities vary and damage may result to batteries or electrical equipment.

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### **SECTION VIII**

### **FIRST AID INFORMATION**

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#### **A. Electrolyte Contact**

- Skin- Immediately flush with plenty of water for at least 15 minutes. If symptoms are present after flushing, get medical attention.
- Eyes- Immediately flush with plenty of water for at least 15 minutes and get medical attention.

#### **B. Lithium Metal Contact**

- Skin- Remove particles of lithium from skin as rapidly as possible. Immediately flush with plenty of water for at least 15 minutes and get medical attention.
- Eyes- Immediately flush with plenty of water for at least 15 minutes and get immediate medical attention.

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### **SECTION IX**

### **DISPOSAL PROCEDURES**

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- Batteries must be completely discharged prior to disposal and/ or the terminals must be taped or capped to prevent short circuit.
- Disposal of large quantities of lithium power cells may be subject to Federal, State, or Local regulations.

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### **SECTION X**

### **TRANSPORTATION**

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- These batteries have been tested to Section 38.3 of 'UN Manual of Tests and Criteria' and have passed T1 through T8. Due to the amount of Lithium contained in these batteries, they must be shipped as: Lithium Batteries, Class 9, UN 3090, PG II. These batteries must be placarded and labeled as defined in DOT and IATA regulations based on mode of transportation.

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**SECTION XI****OTHER INFORMATION**

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The information contained herein is furnished without warranty of any kind. Users should consider this data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.