

MATERIAL SAFETY DATA SHEET

SECTION 1 - Chemical Product and Company Identification

OmniCel Batteries
300 Schell Lane, Suite 301
Phoenixville, PA 19460
U.S.A.

Emergency Contact:
CHEMTREC
Tel: 800-424-9300

PRODUCT NAME: **Lithium Manganese Dioxide (Li-MnO₂) Battery**

SECTION 2 - Hazardous Information

Hazardous Components:

Description:

1. Lithium
2. Manganese Dioxide

SECTION 3 - Physical / Chemical Characteristics

Boiling Point: N/A

Vapor Pressure (mm Hg): N/A

Vapor Density (AIR=1): N/A

Solubility in Water: N/A

Appearance and Odor: Cylindrical Shape, Odorless

Specific Gravity (H₂O=1): N/A

Melting Point: N/A

Evaporation Rate (Butyl Acetate): N/A

SECTION 4 - Hazard Classification

Classification: N/A

UN Test: UN38.3 Test

Product / Material: Lithium Manganese Dioxide cell

Trademark: OmniCel

Rated specification: 3.0V

Is compliance with: UN38.3

Test 1: Altitude Simulation

Test 2: Thermal

Test 3: Vibration

Test 4: Shock

Test 5: External Short Circuit

Test 6: Impact

Test 7: Forced Discharge

Test 8: Overcharge

■ SECTION 5 - Reactivity Data

Stability: Stable Status

Conditions to Avoid: Fire

Incompatibility (Materials to Avoid): Acids

Hazardous Decomposition or Products: N/A

Hazardous Polymerization: Will not occur

■ SECTION 6 - Health Hazard Data

Routes of Entry:

▪ **Inhalation:** N/A

▪ **Skin:** N/A

▪ **Ingestion:** N/A

▪ **Health Hazard (Acute and Chronic) / Toxicological information:**

In case of electrolyte leakage, skin will be itchy when contaminated with electrolytes. Contact with electrolytes can cause severe irritation and chemical burns. Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

■ SECTION 7 - First Aid Measures

- If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.
 - If electrolytes come into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.
 - If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.
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■ SECTION 8 - Fire and Explosion Hazard Data

Flash Point (Method Used): N/A

Ignition Temperature: N/A

Flammable Limits: N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Carbon dioxide, dry chemical or foam extinguishers

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards:

- Do not dispose of battery in fire – may explode.
 - Do not short circuit battery – may cause burns.
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■ SECTION 9 - Accidental Release or Spillage

Steps to be taken in case material is released or spilled:

- Batteries that are leaking should be handled with rubber gloves.
- Avoid direct contact with electrolytes.
- Wear protective clothing and a positive pressure Self Contained Breathing Apparatus (SCBA).

■ SECTION 10 - Handling and Storage

Safe handling and storage advice:

- Batteries should be handled and stored carefully to avoid short circuits.
- Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.
- Never disassemble a battery.
- Do not breathe cell vapors or touch internal materials with bare hands.
- Keep batteries between 15°C and 35°C for prolonged storage.

■ SECTION 11 - Exposure Controls / Personal Protection

Respiratory Protection (Specify Type): N/A

Ventilation: N/A

Local Exhausts: N/A

Special: N/A

Mechanical (General): N/A

Special: N/A

Other: N/A

Eye Protection: N/A

Protective Gloves: N/A

Other Protective Clothing or Equipment: N/A

Work / Hygienic Practices: N/A

■ SECTION 12 - Ecological Information

N/A

■ SECTION 13 - Disposal Considerations

Dispose of batteries according to government regulations.

SECTION 14 - Transportation Information

Lithium metal (primary) cells and batteries are classified and regulated as Class 9 dangerous goods (also known as "hazardous materials" in the United States) by the International Civil Aviation Organization (ICAO), International Air Transport Association (IATA), International Maritime Organization (IMO) and U.S. Department of Transportation (DOT). These organizations and agencies publish regulations that contain detailed packaging, marking, labeling, documentation, and training requirements that must be followed when offering (shipping) cells and batteries for transportation. The regulations are based on the UN Recommendations on the Transport of Dangerous Goods Model Regulations and the UN Manual of Tests and Criteria. The regulations also have specific training requirements for employees who prepare lithium batteries or lithium batteries packed with or contained in equipment. Failure to comply with these regulations can result in substantial civil or criminal penalties.

*"Small" cells and batteries may not be subject to certain provisions of the regulations (e.g., Class 9 labeling and UN specification packaging) if they meet specific requirements. (See regulations referenced below for more information.)

Cell and Battery UN Testing Requirements: The hazardous materials regulations require that each cell and battery design be subject to tests contained in Section 38.3 of the UN Manual of Tests and Criteria. **Batteries or battery packs constructed from UN tested cells must be subjected to tests contained in the UN Manual of Tests and Criteria.**

Regulations:

- **US DOT** - 49 CFR 173.185, See also 49 CFR 172.102 Special Provisions 29, 188, 189, 190, A54 and A55, A100, A101, A103, and A104
- **IATA/ICAO** - Packing Instructions 903, 912, and 918; Special Provisions A45, A88, and A99, A154, A164
- **IMDG Code** - Packing Instruction 903, Special Provisions 188, 230, 310, and 957

CLASS 9 LABEL*



*When required

PROPER SHIPPING NAMES:

- Lithium batteries
- Lithium batteries contained in equipment
- Lithium batteries packed with equipment

UN NUMBERS:

- UN3090
- UN3091
- UN3091

SECTION 15 - Regulatory Information

Special requirements – according to the local regulatory bodies.

SECTION 16 - Other Information

The data in this Material Safety Data Sheet relates only to specific material designated herein.

SECTION 17 - Fire Fighting Measures

Extinguishing Media: In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire Fighting Procedures: Fire fighters should wear Self Contained Breathing Apparatus.

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