SAFETY DATA SHEET

SECTION I – PRODUCT AND COMPANY IDENTIFICATION			
Product Description Product Identification	9-Volt Lithium Manganese Dioxide Batteries (TFSi Style)		
Manufacturer Name/Address	Ultralife Corporation 2000 Technology Parkway Newark, NY 14513	24 Hour Emergency Contact	ChemTrec 800-424-9300 (US) 703-527-3887 (International)
Technical Contact	800-332-5000	Issue Date	02 FEB 10
Prepared By	John Diggory	Revision Date:	14 DEC 12

Section II - HAZARD IDENTIFICATION	
Hazard Classification	This Ultralife battery product meets the definition of an article. Under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar definition, are outside the scope of the system. [Rev. 2 (2007) Part 1.3.2.1.1]
Hazard/Caution Statements	• Do not open or disassemble. • Do not expose to fire or open flame. • Do not mix with batteries of varying sizes, chemistries or types. • Do not puncture, deform, incinerate or heat above 60ºC (140ºF).
The materials contained in this product may only represent a hazard if the integrity of the cell or battery is compromised; physically or electrically abused.	

SECTION III - COMPOSITION - INGREDIENTS/IDENTITY INFORMATION

Under normal use conditions, cells and batteries do not emit hazardous or regulated substances.

Component	CAS Number	EINECS Number	% by Wt.
Manganese Dioxide, MnO_2	1313-13-9	215-202-6	50-60
Lithium Metal, Li	7439-93-2	231-102-5	2-6
Propylene Carbonate, $C_4H_6O_3$	108-32-7	203-572-1	1-5
Ethylene Carbonate, $C_3H_4O_3$	96-49-1	202-510-0	1-5
Ethyl Methyl Carbonate,$C_4H_8O_3$	623-53-0	NA	1-5
Bis (Trifluoromethane) Sulfonimide Lithium (LiTFSi)	90076-65-6	415-300-0	1-5
Non-hazardous components	NA	NA	25-35

Depending on product configuration, components used to assemble battery packs (e.g. housings, electronic components and wiring) may contain additional hazardous materials.

SECTION IV - FIRST AID MEASURES	
Inhalation	• Avoid inhaling any vented gases. • Remove to fresh air immediately. • If breathing is difficult, seek emergency medical attention.
Ingestion	Consult a physician or local poison control center immediately
Skin Contact	• Exposure to materials from a ruptured or otherwise damaged cell or battery may cause skin irritation. • Flush immediately with water and wash affected area with soap and water.
Eye Contact	• Exposure to materials from a ruptured or otherwise damaged cell or battery may cause eye irritation. • Flush immediately with copious amounts of water for at least 15 minutes; consult a physician immediately.

SECTION V - FIRE FIGHTING MEASURES	
Extinguishing Media	• Copious amounts of cold water or water-based foam may be used to cool burning cells or batteries. Do not use warm or hot water. • A carbon dioxide (CO_2) extinguisher is also effective. • For fires involving exposed, raw lithium metal (characterized by deep red flames), use only metal (Class D) fire extinguishers.
Special Fire Fighting Procedures	• Use a positive pressure self-contained breathing apparatus (SCBA) if cells or batteries are involved in a fire. • Full fire fighting protective clothing is necessary. • During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.
Unusual Fire and Explosion Hazard	Cells or batteries that are damaged, opened or exposed to excessive heat/fire may flame or leak potentially hazardous organic vapors.

SECTION VI - ACCIDENTAL RELEASE MEASURES

- In the event a cell or battery is crushed; releasing its contents, rubber gloves must be used to handle all battery components.
- Avoid inhalation of any vapors that may be emitted.
- Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.

SECTION VII - HANDLING AND STORAGE	
Precautions for Safe Handling	• Batteries are not designed to be recharged. Charging a primary cell or battery may result in electrolyte leakage and/or cause the cell or battery to flame. • Never disassemble a battery or bypass any safety device. • More than a momentary short circuit will generally reduce the battery service life. Batteries with fuses will no longer be functional after being shorted. • 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.
Conditions for Safe Storage and Incompatibility	• Batteries should be separated from other materials and stored in a non-combustible, well ventilated structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods. • Do not store batteries above 60ºC (140ºF) or below -40ºC (-40ºF). Store batteries in a cool (below 25ºC (77ºF)), dry area that is subject to little temperature change. Elevated temperatures can result in reduced battery service life. Battery exposure to temperatures in excess of 130ºC (266ºF) will result in the battery venting flammable liquid and gases. • Do not store batteries in a manner that allows terminals to short circuit.

SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION	
Engineering Controls and Work Practices	• Under conditions of normal use, batteries do not emit hazardous or regulated substances. • No engineering controls are required for handling batteries that have not been damaged.
Personal Protective Equipment	• Personal protective equipment for damaged batteries should include chemical resistant gloves and safety glasses. • In the event of a fire, SCBA should be worn along with thermally protective outer garments.

SECTION IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Rectangular pack	UEL/LEL	Not Applicable
Odor	None	Vapor Pressure	Not Applicable
Odor Threshold	Not Applicable	Vapor Density	Not Applicable
pH	Not Applicable	Relative Density	Not Available
Melting Point	Not Available	Solubility	Not Applicable
Boiling Point	Not Available	Partition Coefficient	Not Applicable
Flash Point	Not Applicable	Auto-ignition Temperature	Not Available
Evaporation Rate	Not Applicable	Decomposition Temperature	Not Available
Flammability	Not Applicable	Viscosity	Not Applicable

SECTION X. STABILITY AND REACTIVITY

Stability	Stable	Hazardous Polymerization	Will Not Occur
Conditions to Avoid	It is not recommended that this product be stored above 60ºC (140ºF).		
Hazardous Decomposition	Carbon Monoxide (CO), Hydrogen Fluoride (HF) and other VOC's		

SECTION XI – TOXICOLOGICAL INFORMATION

- No toxicological impacts are expected under normal use conditions.
- The electrolytes contained in this cell or battery can irritate eyes with any contact.
- Prolonged contact of electrolytes with lung tissue, skin or mucous membranes may cause irritation.
- Detailed information regarding sensitization, carcinogenicity, mutagenicity or reproductive toxicity related to internal cell or battery components has not been included in this document.

Carcinogen References

National Toxicology Program (NTP): No

IARC Monographs: No

OSHA: No

SECTION XII – ECOLOGICAL INFORMATION

- No ecological impacts expected under normal use conditions.
- Detailed information regarding the ecological impact of internal cell or battery components has not been included in this document.

SECTION XIII. DISPOSAL CONSIDERATIONS

Do not dispose in fire. Battery disposal regulations vary on national, state/provincial and local bases.

Disposal must be conducted in accordance with the applicable regulations.

These batteries contain recyclable materials and recycling is encouraged over disposal.

SECTION XIV. TRANSPORTATION INFORMATION

Ultralife's lithium metal primary cells and batteries and lithium-ion 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 many government agencies such as the 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) Ultralife's cells and batteries for transportation. **However, small cells and batteries are not subject to certain provisions of the regulations (e.g. Class 9 labeling and UN specification packaging) if they meet specific requirements**. The regulations are based on the UN Recommendations on the Transport of Dangerous Goods Model Regulations and the UN Manual of Tests and Criteria. **These regulations also apply to shipments of cells and batteries that are packed with or contained in equipment.** Failure to comply with these regulations can result in substantial civil or criminal penalties.

The dangerous goods 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 prior to being offered for transport.
Approved, production level cells and batteries manufactured and assembled by Ultralife have been tested to Section 38.3 of the UN Manual of Tests and Criteria and passed T1 through T8.
Batteries or battery packs constructed by other parties using Ultralife's cells must be subjected to the tests contained in Section 38.3 of the UN Manual of Tests and Criteria.

For more detailed information, refer to the Transportation Regulations Page on Ultralife's website:
http://ultralifecorporation.com/be-commercial/transportation-regulations/

Air, Sea and Surface Classification	UN 3090, Lithium metal batteries UN 3091, Lithium metal batteries, contained in equipment UN 3091, Lithium metal batteries, packed with equipment

These cells and batteries must be identified as above on the Bill of Lading (or other shipping documentation) and properly packaged with their terminals protected from short circuit.

Air shipments of lithium metal cells and batteries must be packed and marked according to IATA/ICAO Packing Instruction 968 (batteries only); 969 (with equipment) or 970 (contained in equipment).

Sea shipments of lithium metal cells and batteries must be packed and marked according to IMDG Packing Instruction P903.

Hazard Class	9	Packing Group	II	Tunnel Code	E
Stowage Location	A	Marine Pollutant	No		

SECTION XV. REGULATORY INFORMATION		
US	Hazard Communication Standard (29 CFR 1910.1200)	Article
	CERCLA SECTION 304 Hazardous Substances	NA
	EPCRA SECTION 302 Extremely Hazardous Substance	NA
	EPCRA SECTION 313 Toxic Release Inventory	NA
	EPCRA SECTION 312	NA
	Components Listed on US Toxic Substances Control Act (TSCA) Inventory	Yes
	California Prop 65 Classification	None
EU	Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) 1907/2006	Article
	European RoHS Directive 2008/35/EC	Not Applicable
	European WEEE Directive 2008/34/EC Note: Applies to cells and batteries incorporated into electrical and electronic equipment, when that equipment becomes waste.	See Note

SECTION XVI. OTHER INFORMATION

If returning product to any division of Ultralife, consult the relevant regulations regarding handling, packaging, labeling and transportation.

Disclaimer

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.