

SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

Chemical System: Lithium Manganese Dioxide

Trade Name/ Designation: Cylindrical Lithium Ion Primary

Details of the Supplier:

Manufactured for:
 Universal Power Group, Inc.
 120 Dividend Drive, Suite 100,
 Coppell, TX 75019
 469-892-1122 - www.upgi.com

Emergency Telephone Number:

US: 1-800-535-5053
 Countries outside of US: +1-352-323-3500

Section 2 - Hazard(s) Identification

Intact batteries present no specific hazards. If battery shows signs of leaking, avoid skin or eye contact with the material leaking from the battery. If battery is burning, put out fire using the correct extinguisher/extinguishing method.

Potential Hazards:

Eyes – No particular hazard when battery is intact. Will cause severe irritation or chemical burns when battery is broken.

Skin - No particular hazard when battery is intact. Will cause severe skin irritation or chemical burns when battery is broken.

Inhalation - No particular hazard when battery is intact. Inhalation of fumes or dust from damaged or burning Lithium Manganese Dioxide battery poses serious risks, including respiratory tract irritation, coughing, wheezing, and in severe cases, pulmonary edema.

Ingestion – It is very harmful to swallow battery or anything coming from a damaged battery. Ingestion will cause severe chemical burns to mouth, esophagus, and gastro enteric system.

Environmental – No particular hazard when battery is intact. A leaking Lithium Manganese Dioxide battery poses severe environmental hazards, including releasing toxic chemicals and heavy metals that contaminate soil and water. It can be fatal to local wildlife and destroy habitats.

Explosion and Burning – No particular hazard when battery is being used properly. If the battery is short-circuited or overheated, It may cause a leak of the electrolyte which could trigger a fire or an explosion.

Section 3 - Composition / Information on Ingredients

Chemical Composition	CAS No.	Weight (%)
Manganese Dioxide	1313-13-9	58.5
Lithium	7439-93-2	6
Propylene carbonate	108-32-7	10
Dimethyl ether	115-10-6	0.3
Lithium Perchlorate	7791-03-9	10.3
Polypropylene	9003-07-0	3.6
Nickel	7440-02-0	1.7
Aluminum	7429-90-5	9.6

Section 4 - First Aid Measures

Once the battery shell is ruptured, content contact with the human body will produce harm. Once there is contact, take the following emergency measures:

Eye:

Flush eyes thoroughly with water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention.

Skin:

Remove contaminated clothes and rinse skin thoroughly with water or shower for 15 minutes. Seek medical attention.

Inhalation: Remove yourself from exposure and to fresh air immediately. Use oxygen if available.

Ingestion: Drink at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Seek medical attention.

Section 5 - Fire-Fighting Measures

Extinguishing Media: Carbon Dioxide (CO₂) or dry chemical fire extinguisher

Special Fire-Fighting Procedures: Firefighters should wear self-contained breathing apparatus and full protective clothing. Fight fire from a safe distance and/or protected area. Cool down fire exposed batteries to prevent rupture. Use caution when handling fire exposed containers because they can rocket or explode in the heat of the fire.

Section 6 - Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled:

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

Section 7 - Handling and Storage

The battery should not be opened, destroyed or incinerated, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or over charge the battery, force over-discharge, or throw into fire. Do not crush or puncture the battery, or immerse in liquids.

Precautions to be Taken in Handling and Storing:

Avoid mechanical or electrical abuse. Store preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

Other Precautions:

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

CHARGING: This battery is manufactured in a charged state. It is not designed for recharging. Recharging can cause battery leakage or, in some cases, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards.

Section 8 - Exposure Controls / Personal Protection

Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory protection is not necessary under conditions of normal use.

Ventilation: Not necessary under conditions of normal use.

Protective Gloves: Not necessary under conditions of normal use.

Other Protective Clothing or Equipment: Not necessary under conditions of normal use.

Personal Protection is Recommended for Venting Battery: Respiratory Protection, Protective Gloves, Protective Clothing and Safety Glasses with side shields.

Section 9 - Physical and Chemical Properties

Appearance: Cylindrical

Odors: If leaking, smells of medical ether.

PH: Not applicable as supplied

Flash Point: Not applicable unless individual components exposed.

Flammability: Not applicable unless individual components exposed.

Relative Density: Not applicable unless individual components exposed.

Solubility (water): Not applicable unless individual components exposed.

Solubility (other): Not applicable unless individual components exposed.

Section 10 - Stability and Reactivity

Stability: Product is stable under conditions in Section 7.

Conditions to Avoid: Heat above 70°C or incinerate, deform, mutilate, crush, disassemble, overcharge, or short circuit. Expose over a long period to humid conditions.

Materials to Avoid: Oxidising agents, alkalis, water.

Hazardous Decomposition Products: Toxic Fumes. May form peroxides.

Hazardous Polymerization: N/A

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

Section 11 - Toxicological Information

Signs & Symptoms: None, unless battery ruptures.

In the event of exposure to contents, vapour fumes may be very irritating to the eyes and skin.

Inhalation: Lung irritant.

Skin Contact: Skin irritant.

Eye Contact: Eye irritant.

Ingestion: Poisoning if swallowed,

Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur, targeting organs, nerves, liver and kidneys.

Section 12 - Ecological Information

Mammalian Effects: None known at present.

Eco-Toxicity: None known at present.

Bioaccumulation Potential: Slowly Bio-degradable

Environmental Fate: None known environmental hazards at present.

Section 13 - Disposal Considerations

Do not incinerate, or subject cells to temperature in excess of 70°C, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

Section 14 - Transport Information

UN No. and Shipping Name:

UN 3090 Lithium metal batteries

UN 3091 Lithium metal batteries packed with equipment

UN 3091 Lithium metal batteries contained in equipment

Label for Conveyance: Battery Mark, class 9 lithium battery sodium ion battery hazard label (Only for UN 3090), Cargo Aircraft Only Label (Only for UN 3090).

Packaging Group: N/A

EmS No./EmS: F-A,S-I

Marine Pollutants: No

ICAO/IATA	Shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions PI 968 IB, PI 969 II, PI 970 II	DGR 66th (2025) ICAO (2025-2026 edition)
IMDG CODE	Shipped by sea in accordance with International Maritime Dangerous Code (IMDG CODE) Special Provision 188	IMDG CODE (Amdt. 42-24)

Section 15 - Regulatory Information

Law Information:

«Dangerous Goods Regulations»

«Recommendations on the Transport of Dangerous Goods Model Regulations»

«International Maritime Dangerous Goods Code»

«Technical Instructions for the Safe Transport of Dangerous Goods»

«Safety Data Sheet for chemical products-Content and order of sections»

«Guidance on the compilation of safety data sheet for chemical products»

«List of Dangerous Chemical Substances 2015»

«Safety data sheet for chemical products-Content and order of sections»

«Globally Harmonized System of Classification and Labeling of Chemicals (GHS)»

Section 16 - Other Information

This file is only effective to the batteries (CR9V) provided by commissioner and manufactured by UPG. The commissioner provides the composition information of batteries and promises its integrity and accuracy, Users should read this file carefully, and use the batteries in correct method. UPG does not assume responsibility for any damage or loss due to misuse of batteries.

-End of SDS-