



SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	Lithium metal (CR2025)
Other means of identification	Not available
Recommended use	Sealed battery
Recommended restrictions	None known.
Manufacturer information	Hollowick, Inc. 100 Fairgrounds Dr. P.O. Box 305 Manlius, NY 13104 US Phone: 315-682-2163 Phone: 800-367-3015 (Toll free) Fax: 315-682-6948 Emergency Phone: 1-800-424-9300 (CHEMTREC) Emergency Phone: 1-703-527-3887 (CHEMTREC) (Outside US)
Supplier	See above.

2. Hazards Identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
WHMIS 2015 defined hazards	Not classified
Label elements	
Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC)	None known
WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)	None known
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	This product is a manufactured article and is exempt.

US: As per OSHA, 1910.1200(b)(6)(v), articles are not regulated under HCS 2012.

As per OSHA Definitions: 1910.1200 (c). Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

CANADA: As per the Hazardous Products Act: A manufactured article means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product.

3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Manganese oxide (MnO ₂)		1313-13-9	28
1,3-Dioxolan-2-one, 4-methyl-		108-32-7	6
Ethylene glycol dimethyl ether		110-71-4	3.6
Lithium		7439-93-2	2.2

Composition comments *This composition applies to the cell of the battery and the electrolyte of the unused battery.

4. First Aid Measures

Inhalation	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
Skin contact	Immediately flush with water. Wash with soap and water. Obtain medical attention if irritation persists.
Eye contact	Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately.
Ingestion	Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious or is convulsing. Obtain medical attention.
Most important symptoms/effects, acute and delayed	Direct contact with the electrolyte may cause chemical burns.
Indication of immediate medical attention and special treatment needed	Symptoms may be delayed.
General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Wear rubber gloves and chemical splash goggles. Keep out of reach of children.

5. Fire Fighting Measures

Suitable extinguishing media	If batteries are on charge, turn power off. Dry chemical. Dry sand. Carbon dioxide.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Battery may burst and release hazardous decomposition products when exposed to a fire situation. Some may burn but not ignite readily. Containers may explode when heated. Some may be transported hot.
Special protective equipment and precautions for firefighters	Firefighters should wear full protective clothing including self-contained breathing apparatus.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.
Hazardous combustion products	May include and are not limited to: Oxides of carbon. Oxides of lithium.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep out of low areas. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	In the case of a leaking battery: Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice.
Environmental precautions	Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling	Avoid short-circuiting the battery. Avoid mechanical damage to the battery. Do not open or disassemble. Battery may explode or cause burns if disassembled, crushed or exposed to fire or high temperatures. Do not install with incorrect polarity Use good industrial hygiene practices in handling this material.
--------------------------------------	---

Conditions for safe storage, including any incompatibilities

Keep out of the reach of children.
 Keep this material away from food, drink and animal feed.
 Keep away from heat, sparks, and flame.
 Store in a cool dry place below 30°C (86°F) Do not store below -20°C.

8. Exposure Controls/Personal Protection

Occupational exposure limits**Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)**

Components	Type	Value
Manganese oxide (MnO ₂) (CAS 1313-13-9)	TWA	0.2 mg/m ³

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Manganese oxide (MnO ₂) (CAS 1313-13-9)	TWA	0.2 mg/m ³

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value	Form
Manganese oxide (MnO ₂) (CAS 1313-13-9)	TWA	0.1 mg/m ³	Inhalable fraction.
		0.02 mg/m ³	Respirable fraction.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Ethylene glycol dimethyl ether (CAS 110-71-4)	TWA	18 mg/m ³
		5 ppm
Manganese oxide (MnO ₂) (CAS 1313-13-9)	TWA	0.2 mg/m ³

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
Manganese oxide (MnO ₂) (CAS 1313-13-9)	TWA	5 mg/m ³	Dust.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Manganese oxide (MnO ₂) (CAS 1313-13-9)	Ceiling	5 mg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Manganese oxide (MnO ₂) (CAS 1313-13-9)	TWA	0.1 mg/m ³	Inhalable fraction.
		0.02 mg/m ³	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Manganese oxide (MnO ₂) (CAS 1313-13-9)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines**Canada - Ontario OELs: Skin designation**

Ethylene glycol dimethyl ether (CAS 110-71-4)

Can be absorbed through the skin.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Safety glasses if eye contact is possible.

Skin protection**Hand protection**

Rubber gloves. Confirm with a reputable supplier first.

Other

Wear appropriate chemical resistant clothing. As required by employer code.

Respiratory protection	Not normally required if good ventilation is maintained.
Thermal hazards	Not applicable.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink.

9. Physical and Chemical Properties

Appearance	Coin shaped
Physical state	Solid.
Form	The battery cell is contained in a case, designed to withstand temperatures and pressure during normal use.
Color	Silver
Odor	Odorless
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Pour point	Not available.
Specific gravity	Not available.
Partition coefficient (n-octanol/water)	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Insoluble
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	Voltage 3.7V Electric capacity 220mAh Electric Energy 0.814Wh

10. Stability and Reactivity

Reactivity	Reaction with water or moist air will release toxic, corrosive or flammable gases.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Heat, open flames, static discharge, sparks and other ignition sources. Exposure to water or water vapor. Avoid direct sunlight. High temperatures.
Incompatible materials	Strong acids. Strong oxidizing agents. Conductive materials. Seawater.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon. Oxides of lithium. Oxides of cobalt. Oxides of phosphorus. Hydrogen fluoride.

11. Toxicological Information

Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Information on likely routes of exposure	
Ingestion	Harmful if swallowed. May cause chemical burns to mouth, throat and stomach.

Inhalation No adverse effects due to inhalation are expected.
Inhalation of the electrolyte may be corrosive to the upper airways, cause a burning sensation in the nose, mouth and throat as well as leading to sneezing, coughing, breathing difficulties and chest pain.

Skin contact Direct contact with the electrolyte may cause chemical burns.

Eye contact Direct contact with the electrolyte may cause chemical burns. May cause blindness.

Symptoms related to the physical, chemical and toxicological characteristics Direct contact with the electrolyte may cause chemical burns.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
1,3-Dioxolan-2-one, 4-methyl- (CAS 108-32-7)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	>= 2000 mg/kg, Sigma Aldrich
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Rabbit	> 20 ml/kg, HSDB
	Rat	> 5000 mg/kg, ECHA 33520 mg/kg, ECHA 32319 mg/kg, ECHA 27 ml/kg, ECHA
Ethylene glycol dimethyl ether (CAS 110-71-4)		
Acute		
<i>Dermal</i>		
LD50	Rat	> 5000 mg/kg, 24 Hours, ECHA
<i>Inhalation</i>		
LC50	Rat	20 - 63 mg/L, 6 Hours, ECHA
<i>Oral</i>		
LD50	Rat	5370 mg/kg, ECHA
Manganese oxide (MnO ₂) (CAS 1313-13-9)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Rat	2.8 - 43 mg/m ³ , CCOHS
<i>Oral</i>		
LD50	Rat	9000 mg/kg, CCOHS
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Exposure minutes	Not available.	
Erythema value	Not available.	
Oedema value	Not available.	
Serious eye damage/eye irritation	Direct contact with the electrolyte may cause chemical burns.	
Corneal opacity value	Not available.	
Iris lesion value	Not available.	
Conjunctival reddening value	Not available.	
Conjunctival oedema value	Not available.	
Recover days	Not available.	
Respiratory or skin sensitization	The finished product is not expected to have chronic health effects.	
Respiratory sensitization	The finished product is not expected to have chronic health effects.	

Skin sensitization	This product is not expected to cause skin sensitization.
Mutagenicity	The finished product is not expected to have chronic health effects.
Carcinogenicity	The finished product is not expected to have chronic health effects. See below.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	The finished product is not expected to have chronic health effects.
Teratogenicity	The finished product is not expected to have chronic health effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	The finished product is not expected to have chronic health effects.

12. Ecological Information

Ecotoxicity See below

Ecotoxicological data

Components	Species	Test Results
1,3-Dioxolan-2-one, 4-methyl- (CAS 108-32-7)		
Algae	IC50	Algae 500 mg/L, 72 Hours
Crustacea	EC50	Daphnia 500 mg/L, 48 Hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

Transport of Dangerous Goods (TDG) Proof of Classification Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.

General

Canada: See special provisions to determine the packaging requirements and exemptions for shipping lithium metal batteries.

US: See special provisions to determine the packaging requirements and exemptions for shipping lithium metal batteries.

U.S. Department of Transportation (DOT)

Basic shipping requirements:

UN number	UN3091
Proper shipping name	Lithium metal batteries contained in equipment including lithium alloy batteries
Hazard class	9
Packing group	II
Marine pollutant	Yes

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN3091
------------------	--------

Proper shipping name
Hazard class

LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT (including lithium alloy batteries)
9

DOT; TDG



15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS 2015 Exemptions

Not applicable

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Ethylene glycol dimethyl ether (CAS 110-71-4) 1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

Ethylene glycol dimethyl ether (CAS 110-71-4) Listed.

Manganese oxide (MnO₂) (CAS 1313-13-9) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Manganese oxide (MnO ₂)	1313-13-9	28
Ethylene glycol dimethyl ether	110-71-4	3.6

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Ethylene glycol dimethyl ether (CAS 110-71-4)

Manganese oxide (MnO₂) (CAS 1313-13-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance
Priority pollutant
Toxic pollutant

US state regulations

US - California Hazardous Substances (Director's): Listed substance

Manganese oxide (MnO₂) (CAS 1313-13-9) Listed.

US - Illinois Chemical Safety Act: Listed substance

Ethylene glycol dimethyl ether (CAS 110-71-4)

Manganese oxide (MnO₂) (CAS 1313-13-9)

US - Louisiana Spill Reporting: Listed substance

Ethylene glycol dimethyl ether (CAS 110-71-4) Listed.
 Manganese oxide (MnO2) (CAS 1313-13-9) Listed.

US - Minnesota Haz Subs: Listed substance

Manganese oxide (MnO2) (CAS 1313-13-9) Listed.

US - New Jersey RTK - Substances: Listed substance

Ethylene glycol dimethyl ether (CAS 110-71-4)
 Lithium (CAS 7439-93-2)
 Manganese oxide (MnO2) (CAS 1313-13-9)

US - North Carolina Toxic Air Pollutants: Listed substance

Manganese oxide (MnO2) (CAS 1313-13-9)

US - Texas Effects Screening Levels: Listed substance

1,3-Dioxolan-2-one, 4-methyl- (CAS 108-32-7) Listed.
 Ethylene glycol dimethyl ether (CAS 110-71-4) Listed.
 Lithium (CAS 7439-93-2) Listed.
 Manganese oxide (MnO2) (CAS 1313-13-9) Listed.

US. Massachusetts RTK - Substance List

Ethylene glycol dimethyl ether (CAS 110-71-4)
 Lithium (CAS 7439-93-2)

US. New Jersey Worker and Community Right-to-Know Act

Ethylene glycol dimethyl ether (CAS 110-71-4)
 Manganese oxide (MnO2) (CAS 1313-13-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Ethylene glycol dimethyl ether (CAS 110-71-4)
 Lithium (CAS 7439-93-2)
 Manganese oxide (MnO2) (CAS 1313-13-9)

US. Rhode Island RTK

Lithium (CAS 7439-93-2)

US. California Proposition 65

Not Listed.

Inventory status

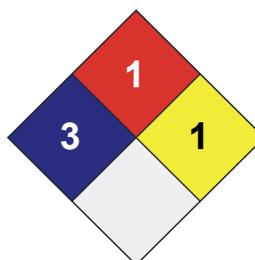
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 3
FLAMMABILITY	1
PHYSICAL HAZARD	1
PERSONAL PROTECTION	X

**Disclaimer**

The information in the safety data sheet was written by Dell Tech Laboratories Ltd. (www.delltech.com) based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

Issue date

19-June-2019

Version #

01

Effective date

17-June-2019

Prepared by

Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information

For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.