

PRODUCT INFORMATION SHEET

From: Bren-Tronics Inc.
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Emergency Telephone: If no answer above, contact Chem-Tel Corporation at 1-800-255-3924 or Int'l +1 813-248-0585

Product: Lithium Battery (Li-MnO₂)

P/N: BT-70242

Effective Date: 30 Sep 2021

[**Alternate P/N's: BT-70242-1, BT-70242-2, BT-70242-3**]

The batteries referenced herein are exempt articles and are not subject to OSHA Hazard Communication Standard requirements. This entire document is provided solely as an information source for the purpose of assisting our customers.

According to OSHA Regulation (29 CFR 1910.1200), Canadian WHMIS or GHS requirements, and REACH regulation (EC 1907/2006, Art 31), batteries have been defined as an 'ARTICLES', with no intended release. OSHA has defined an 'article' as 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 minute or trace amounts of a hazardous chemical and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as "articles", they are exempt from the legal requirements of the Hazard Communication Standard to provide an SDS or MSDS.

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1. Product Identification

Product Name: Lithium Battery
Chemical System: Lithium Metal [Lithium Manganese Dioxide (Li-MnO₂), Non-Rechargeable]
NSN: 6135-01-357-0621, 6135-01-486-7709
Nominal Weight: 0.22 lbs (0.1 kg)
Nominal Voltage: 3.0 V
Max Lithium Content of Alternates: 4.19 g

2. Composition/Information on Ingredients

Although the chemical composition of the various cell manufacturers is proprietary, the following is typical of the chemistry.

Ingredients	--mg/m ³ -- OSHA PEL	--mg/m ³ -- ACGIH TLV	CAS Number	Approximate % Of Total Battery Weight
Lithium (Li)	-	-	7439-93-2	2.4 %
Manganese Dioxide (MnO ₂)	5	0.2	1313-13-9	30.7 %
Lith perchlorate (LiClO ₄)	-	-	7791-03-9	<1.6 %
Tetrahydrofuran (C ₄ H ₈ O)	-	-	109-99-9	5.7 %
Propylene Carbonate (C ₃ H ₆ CO ₃)	-	-	108-32-7	6.8 %
1,2 Dimethoxyethane (CH ₃ OCH ₂ CH ₂ OCH ₃)	-	-	110-71-4	1.9 %
Carbon (Cn)	3.5	3.5	1333-86-4	1.7 %

These chemicals and metals are contained in a sealed can.

Cont'd:

3. Hazards Identification

Routes of Entry:

Inhalation? Not anticipated. Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.

Skin? Yes

Ingestion? Yes

Potential Health Effects:

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents. Propylene Carbonate is mildly irritating upon eye and skin contact. Contact of electrolyte and extruded lithium with skin and eyes should be avoided. Inhalation or ingestion of lithium trifluoromethane sulfonate may be harmful.

Signs/Symptoms of Exposure:

Skin and eye irritation may occur following exposure to a leaking battery.

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

Elevated temperatures can result in reduced performance or overheating and ignition. See also Para 7.

4. First Aid Measures

Emergency & First Aid Procedures:

If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for thirty (30) minutes, exposed skin for at least fifteen (15) minutes.

Contact Physician at once. Leaking contents may be irritating to respiratory passages.

Remove to fresh air. Contact physician if irritation persists. If ingested, rinse mouth and surrounding area with clear, tepid water for at least fifteen (15) minutes.

Consult physician immediately for treatment and to rule out involvement of the esophagus and other tissues.

5. Fire Fighting Measures

Extinguishing Media:

Water spray, Carbon Dioxide, dry chemical powder or appropriate foam. Use agent appropriate for surrounding materials

Special Fire Fighting Procedures:

In burning, wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosion Hazards:

Organic components will burn if cell incinerated. Combustion of cell contents will cause evolution of extremely corrosive Hydrogen Fluoride gas.

6. Accidental Release Measures

Ventilation:

None under normal use conditions.

Protective Gloves:

None under normal use conditions. Use butyl gloves when handling leaking batteries.

Eye Protection:

None under normal use conditions. Wear safety glasses when handling leaking batteries.

7. Handling and Storage

Precautions to be taken in Handling and Storage:

For best service life, store batteries in a cool, below 70°F (21°C), dry area that is subject to minimal temperature changes. Do not place near fire, heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in reduced performance and/or battery service life. Temperatures above typically 90°C (194°F) can cause battery to overheat or ignite.

Other Precautions:

Do not disassemble battery or battery pack. Do not puncture, crush or dispose of in fire.

8. Exposure Controls/Personal Protection

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

Notify safety personnel of large spills. Evacuate the area and allow vapors to dissipate. Increase ventilation. Avoid eye or skin contact. **DO NOT** inhale vapors. Clean up personnel should wear appropriate protective gear. Remove spilled liquid with absorbent and contain for disposal.

Transport containers outdoors. Hold burned cells and fire cleanup solids for disposal as potential hazardous waste. Unburned cells are not hazardous waste. A fire with over 100 kg of burned cells will likely require reporting to environmental offices. Always consult and obey all international, federal and local environmental laws.

9. Physical Properties

Appearance: Cylindrical shape

Odor: If leaking, smells of medical ether

10. Stability and Reactivity

Stability:

Stable

Conditions to Avoid:

Do not heat, crush, disassemble, or short-circuit.

Hazardous Decomposition or By-products:

Thermal degradation may produce hazardous fumes of manganese and lithium; hydrofluoric acid; oxides of carbon and sulfur and other toxic by-products.

Hazardous Polymerization:

Will not occur.

Incompatible Materials:

Contents incompatible with strong oxidizing agents.

11. Toxicological Information

Carcinogenicity:	NTP?	IARC Monograph?	OSHA Regulated?
	No	No	No

12. Ecological Information

N/A

13. Disposal Considerations

- 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 batteries containing lithium cells may be subject to Federal, State or local regulations.

14. Transport Information

Transportation: This lithium battery (containing > 2 g to ≤ 25 g lithium metal) is regulated as a Class 9 Miscellaneous hazardous material (dangerous goods) but qualifies for exceptions in the regulations. The UN number is UN3090. The battery and component cells conform to the requirements of Sub-Section 38.3 of the UN Manual of Tests and Criteria (T1-T8 tests). The battery is subject to the transport regulations listed below. If battery is “packed with” or “contained in” equipment, see requirements for UN3091.

A. Domestic Transportation within U.S. by Highway and Rail Only for Lithium Metal Batteries > 2 g to ≤ 25 g. See 49 CFR 173.185(c)(1)(iv).

“Excepted” from the U.S. Hazardous Materials Regulations if the following requirements are met: Battery must be shipped by highway or rail only, placed in inner packaging, packaged in a manner to prevent short circuits, and packed in a strong outer packaging capable of passing a 1.2 meter drop test (UN performance packaging, such as 4G fiberboard box, is *not* required). Package must be marked with the lithium battery mark shown on the right and the following statement in letters at least 0.25” high: “LITHIUM BATTERIES – FORBIDDEN FOR TRANSPORT ABOARD AIRCRAFT AND VESSEL.” The weight of package may not exceed 30 kg (66 lbs) *gross*.



B. Domestic and International Transportation by Air. See 49 CFR 173.185(b) and IATA Packing Instruction 968, Section IA.

Note: All standalone lithium metal batteries shipped by air are limited to cargo aircraft only.

Shipment is not “excepted” from transport regulations and must be offered as fully-regulated Class 9 dangerous goods. Batteries must be placed in inner packaging and protected from short circuits. A 4G UN package is required and must include the Class 9 lithium battery hazard label and Cargo Aircraft Only (CAO) label as shown on the right, proper shipping name, UN number, and net weight. It must be accompanied by a Shipper’s Declaration for Dangerous Goods. Weight of batteries in package may not exceed 35 kg (77 lbs) *net*. Employees must receive hazardous materials/dangerous goods training in accordance with applicable regulations.



C. International Transportation by Sea or by Motor Vehicle or Rail in Europe. See IMDG Code and European Road and Rail Regulations (ADR/RID), Packing Instruction P903.

Similar requirements to those listed in paragraph B. above. Battery must be offered as fully-regulated Class 9 dangerous goods and comply with the applicable packaging requirements in the IMDG Code and ADR/RID, Packing Instruction P903. Package must be labeled and marked with proper shipping name, UN number, and Class 9 lithium battery label and accompanied by a Shipper’s Declaration for Dangerous Goods. Cargo Aircraft Only label is not required. Weight of package may not exceed the UN performance packaging rated weight limit. Employees must receive dangerous goods training in accordance with applicable regulations.

15. Regulatory Information

Batteries are considered to be “articles” and thus are exempt from TSCA regulation.

16. Other Information

Avoid mechanical or electrical abuse. **DO NOT** short circuit or install incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged, or exposed to high temperatures. Install batteries in accordance with equipment instructions.

This information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Bren-Tronics, Inc. makes no warranty, expressed or implied, regarding the accuracy of the data or the results to be obtained from the use thereof