

PRODUCT INFORMATION SHEET

Bren-Tronics Inc.
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Product: Lithium Battery (Li-MnO₂)

P/N: BT-70425

Effective Date: 01 May 2017

[Alternate P/N's: BA-5368/U]

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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Emergency Telephone: If no answer above, contact Chem-Tel Corporation at 1-800-255-3924 or 1-813-248-0585

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1. Product Identification

Product Name: Lithium Battery
Chemical System: Lithium Metal Battery [Lithium Manganese Dioxide (Li-MnO₂), Non-Rechargeable]
NSN: 6135-01-455-7947
Nominal Weight: 0.076kg (2.7oz / 0.17lb)
Nominal Voltage: 12 V
Lithium Content Category: 2g - 25g

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

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge, or expose to temperatures above 85 C as there is risk of fire or explosion if doing so. This Lithium Manganese Dioxide battery contains sealed units which are not hazardous when used according to manufacturers recommendations.

Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure is only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or rupture of the cell containers. Electrolyte leakage or battery vent /explosion /fire may follow, depending upon the circumstances.

4. First Aid Measures

Inhalation- Remove from exposure; rest and keep warm. In severe cases obtain medical attention.

Skin Contact- Wash off skin thoroughly with tap water. Remove contaminated clothing and wash before reuse.

In severe cases obtain medical attention.

Eye Contact- Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.

Ingestion- Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

Further Treatment- All cases of eye contamination, persistent skin irritation and casualties who have swallowed any of this substance or been affected by breathing its vapors should see a doctor.

5. Fire Fighting Measures

Extinguishing Media: Use water or CO2 on burning cartons or batteries and intact cells.

Special Fire Fighting Procedures:

Cool fire-exposed batteries and adjacent structures with water spray from a distance.

CO2 extinguishers or copious quantities of water or water based foam can be used to cool down burning batteries and cells as long as the extent of the fire has NOT progressed to the point that the lithium metal that they contain is exposed. For the general cool down do not use sand, dry powder, soda ash, graphite powder or fire blankets.

Use only metal (Class D) extinguishers on **raw lithium**.

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.

Earth or sand may be used to absorb any exudation. Seal leaking battery and earth in a heavy duty polyethylene bag and dispose of as special waste in accordance with local regulations.

7. Handling and Storage

Precautions to be taken in Handling and Storage:

Do not short circuit, recharge, force discharge, immerse, puncture or crush. Store batteries in a cool, dry area.

While the storage temperature range extends from -4°F to 122°F, (-20°C to +50°C), the battery longevity is maximized when stored at or below 70°F (23°C). Short term excursions higher than above temperature range (to 158°F (70°C) max) are allowable but may result in reduced battery service life. Do not place near heating equipment, ovens, etc.

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.

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.

In large fire situations, use self-contained breathing apparatus.

9. Physical and Chemical 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, short-circuit or recharge.

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. Lithium metal reacts with water to produce highly flammable gases.

Hazardous Polymerization:

Will not occur.

Incompatible Materials:

Contents incompatible with strong oxidizing agents, alkalis, water.

11. Toxicological Information

Signs and symptoms- None, unless battery ruptures. In the event of exposure to internal contents, vapor fumes may be irritating to the eyes and skin. Inhalation- Lung irritant; Skin Contact- Skin irritant; Eye Contact- Eye irritant; Ingestion- Poisoning if swallowed, Target organs- nerves, liver and kidneys.

12. Ecological Information N/A

13. Disposal Considerations

Waste Disposal Method:

No special precautions are required for small quantities. Large quantities of open batteries should be treated as hazardous waste. Dispose in accordance with local, state, and federal regulations. Do not incinerate, since batteries may explode at excessive temperatures.

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14. Transport Information

Transportation: This lithium battery is regulated as a Class 9 Miscellaneous hazardous material (dangerous goods). The UN number is UN3090. The Lithium metal content per battery is 3g (0.75g/cell). The battery and component cells conform to the requirements of Section 38.3 of the UN Manual of Tests and Criteria (T1-T8 tests). The battery is subject to the transport regulations listed below. **Note: shipping on any passenger aircraft is forbidden.**

A. Domestic Transportation Within U.S. by Highway and Rail Only for Lithium Metal Batteries > 2g to ≤ 25g. 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 placed (all modes) in non-metallic inner packagings that completely enclose the battery TO PREVENT SHORT CIRCUITS and then in a strong outer package. Package must be marked with the lithium battery handling marking shown on the right and “LITHIUM BATTERIES – FORBIDDEN FOR TRANSPORT ABOARD AIRCRAFT AND VESSEL.” (Letters must be a minimum of 0.25” in height.) Shipment must be accompanied with a document indicating that the package contains a lithium battery; that the package must be handled with care and that a flammable hazard exists if the package is damaged; special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary; and a telephone number for additional information. Package must be capable of passing a 1.2 meter drop test and the gross weight of package may not exceed 30 kg (66 lbs).



B. Domestic Transportation within the U.S. by Air or Sea. See 49 CFR 173.185(b).

Battery must be offered as fully-regulated Class 9 hazardous materials (dangerous goods)/UN3090. Shipper must comply with UN specification packaging requirements in 49 CFR 173.185(b), typically 4G. Package must be labeled and marked with UN i.d. info, CI 9 and Cargo Aircraft Only labels and accompanied by a hazardous materials shipping paper or Shipper’s Declaration for Dangerous Goods according to 49 CFR 172. Net weight of batteries per package may not exceed 35 kg & must ship on cargo aircraft. If battery is “packed with” or “contained in” equipment, see requirements for UN3091. Employees must receive hazardous materials training in accordance with 49 CFR requirements.

C. International Transportation: All Modes – ADR/RID, IMDG Code, IATA Dangerous Goods Regulations and ICAO Technical Instructions (Packing Instruction 968, Section IA).

Similar requirements to those listed in paragraph B. above. Battery must be offered as fully-regulated Class 9 dangerous goods/UN3090. Shipper must comply with applicable packaging requirements in international dangerous goods regulations (e.g., IATA Packing Instruction 968, Section IA and IMDG Code, Packing Instruction P903). Package must be labeled and marked with UN i.d. info, CI 9 and Cargo Aircraft Only labels and accompanied by a Shipper’s Declaration for Dangerous Goods. Net weight of batteries per package may not exceed 35 kg & must ship on cargo aircraft. If battery is “packed with” or “contained in” equipment, see requirements for UN3481. 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 incorrectly 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.