Bren-Tronics, Inc.
"Intelligent Military Batteries & Charging Systems"™
10 Brayton Court, Commack, NY 11725-3197

PRODUCT INFORMATION SHEET

From: **Bren-Tronics Inc.**
10 Brayton Court
Commack, N.Y. 11725

Telephone: 631-499-5155
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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 Ion Battery (Li-Ion)

P/N: BT-70480

Effective Date: 31 Jul 2020

[Alternate P/N's: ALI 143, (-S), BT-70480-S, BT-70480AA, (-S), BT-70480AK, (-S), BT-70480BE, (-S), BT-70480BK, (-S), BT-70480BG, (-S)]

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 Ion Battery
Chemical System: Li-Ion
NSN: n/a
Nominal Weight: 3.53 lbs, (1.65 kg)
Nominal Voltage: 14.4V
Max Energy of Alternates: 294 Wh

2. Composition/Information on Ingredients

Although the chemical composition of the various cell manufacturers is proprietary, the following is typical of the chemistry. Per-centages could vary between specific anode-cathode designs.

Hazardous Components (Specific Chemical Identity; Common Name(s))	%	CAS Number	LD_{50}(mg/kg) (oral-rat)	LC (mg/L)
Aluminum foil	0.1-1 w/w	7429-90-5	N/AV	A/AV
Biphenyl (BP)	0 -0.3 w/w	92-52-4	2400	N/AV
Copper foil	0.1 -0.3 w/w	7440-50-8	3.5(ipr-mouse)	N/AV
Dioxathiolane 2,2-Dioxide (DTD)	0 -3 w/w	1072-53-3	1600	N/AV
Linear and Cyclic Carbonic Solvents (See other information)	5 -17 w/w	N/APP	≈11000 (weighted avg)	N/AV
Graphite Powder	10-30 w/w	7440-44-0	440 (ivn-mouse)	N/AV
Lithium Carbonate	0 -0.3 w/w	554-13-2	525	N/APP
Lithium cobaltite ($LiCoO_2$)	01-3- w/w	12190-79-3	N/AV	N/AV
Lithium hexaflurorphosphate ($LiPF_6$)	1-5 w/w	21324-40-3	1702	Rat: >20
Poly (vinylidene fluoride) (PVDF)	0.1 -1 w/w	24937-79-9	N/AV	N/AV
Propane Sultone (PS)	0-3 w/w	1120-71-4	100	N/AV
Steel, nickel and inert polymer	Balance	N/APP	N/APP	N/APP

These chemicals and metals are contained in a sealed can.

3. Hazards Identification

Routes of Entry:

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:

If large quantities are 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 cells burnt will likely require reporting to environmental offices. Always consult and obey all international, federal and local environmental laws.

9. Physical and Chemical Properties

Appearance:

Rectangular box shape

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 ion battery is regulated as a Class 9 Miscellaneous hazardous material (dangerous goods). The UN number is UN3480. **The max Watt-hour rating of included alternates is 294 Wh**. 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.

A. Domestic Transportation Within U.S. by Highway and Rail Only for Lithium ion Batteries | > 100 Wh to ≤ 300 Wh. 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, packaged in a manner to prevent short circuits and packed in a strong outer packaging. 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 ion battery; the package must handled with care and that a flammable hazard exits 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).

Lithium Battery Handling Marking

NOTE – ***For air transport, all Li-Ion batteries can only be charged to 30% max, shipped cargo aircraft only, and have CAO label on package. Shipping on passenger aircraft is forbidden.***

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)/UN3480. Shipper must comply with packaging requirements in 49 CFR 173.185(b). Package must be labeled and marked 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. No weight limit for highway, rail and sea transport with adequately rated UN specification packaging. If battery is "packed with" or "contained in" equipment, see requirements for UN3481. 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 965, Section IA).

Similar requirements to those listed in paragraph B. above. Battery must be offered as fully-regulated Class 9 dangerous goods/UN3480. Shipper must comply with applicable packaging requirements in international dangerous goods regulations (*e.g.*, IATA Packing Instruction 965, Section IA and IMDG Code, Packing Instruction P903). Package must be labeled and marked according to applicable regulations 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. No weight limit for highway, rail and sea transport with adequately rated UN specification packaging. 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, pyrolize or vent if disassembled, crushed, recharged incorrectly or exposed to high temperatures. Install batteries in accordance with equipment instructions.