MSDS Report

Prepared For :	BBM Battery Inc. 1235 Shawson Dr #11, Mississauga, Ontario Canada L4W 1C4.
Product Name:	Primary lithium battery
Model :	IC693ACC302
Nominal Voltage:	3.0V
Typical Capacity:	15Ah
Weight:	136.0g
Dimension :	78.0×53.0×26.0 mm(L× W× T)
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Report No.:	NCT17004508M1-1

Written by: Kaaby Nong Approved by:

Inspected by: Hely Wang Date: 2017. 03. 08

Material Safety Data Sheet

Section 1- Chemical Product & Company Identification

Product Name: Primary lithium battery

Manufacture: BBM Battery Inc.

Address: 1235 Shawson Dr #11, Mississauga, Ontario Canada L4W 1C4.

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Item Code: NCT17004508M1-1

Section 2- Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred battery the ingredients contained within or their ingredients products could be harmful.
Appearance, Color, Odor	Solid object with no odor, black.
Primary Route(s) of Exposure	These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact
Potential Health Effects:	**ACUTE (short term):** see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns. **Inhalation:** Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation. **Ingestion:** Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

	Skin: Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin. **Eye:** Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye. **CHRONIC (long term):** see Section 11 for additional toxicological data
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

Section 3- Composition/Information on Ingredients

Primary lithium battery is a mixture

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Stainless Steel	71.604-72.568	65997-19-5
Copper Polypropylene	1.924-2.412	9003-07-0
Manganese powder	18.192-19.264	1313-13-9
Lithium Sheet	1.224-1.523	7439-93-2
Lithium Perchlorate	0.770-0.912	7791-03-9
Diaphragm Polypropylene	0.466-0.512	9003-07-0
Teflon	1.114-1.203	9002-84-0
Graphite	1.114-1.203	7782-42-5
Propylene Carbonate	2.047-3.025	108-32-7
1,2-dimmethoxyethane	1.545-2.103	110-71-4

Labeling according to EC directives.

No symbol and risk phrase are required.

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

Section 4- First Aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

Section 5- Fire Fighting Measures

Flammable Properties	In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	Sensitivity to Mechanical Impact: This may result in rupture in extreme cases Sensitivity to Static Discharge: Not Applicable
Protective Equipment and precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

Section 6- Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
Methods and materials for cleaning up	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Section 7- Handling and Storage

Handling	Don't handling the battery with metalwork. Do not open, dissemble, crush or burn the battery. Ensure good ventilation/ exhaustion at the workplace. Prevent formation of dust. Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.
Storage	It is recommended at + 30°C (+ 86°F) for long period storage. Do not storage the battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep out of reach of children. Do not expose the battery to heat or fire. Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials.

Section 8 - Exposure Controls/Personal Protection

Engineering Controls	Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor. Keep away from heat and open flame. Store in a cool, dry place.
Personal Protective Equipment	Respiratory Protection: Not necessary under normal conditions. Skin and body Protection: Not necessary under normal conditions, Wear neoprene or nitride rubber gloves if handling an open or leaking battery. Hand protection: Wear neoprene or natural rubber material gloves if handling an open or leaking battery. Eye Protection: Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.
Other Protective Equipment	Have a safety shower and eye wash fountain readily available in the immediate work area.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

Section 9- Physical and Chemical Properties

Physical State	Form: Solid	
	Color: Black	
	Odour: Monotony	
Change in condition:		
pH, with indication of the concentration		Not applicable
Melting point/freezing point		Not available.
Boiling Point, initial boiling point and Boiling range:		Not available.
Flash Point		Not available.
Upper/lower flammability or explosive limits		Not available.
Vapor Pressure:		Not applicable
Vapor Density: (Air = 1)		Not applicable
Density/relative density		Not available.
Solubility in Water:		Insoluble
n-octanol/water partition coefficient		Not available.

Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odout threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

Section 10 – Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject the battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

Section 11 – Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

Section 12-Ecological Information

General note:	Water hazard class 1(Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

Section 13 – Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling;

Section 14 – Transport Information

This report applies to by sea, by air and by land;

The Primary lithium battery (model: IC693ACC302) tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

The Primary lithium battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

The Primary lithium battery according to Section IA of PACKING INSTRUCTION 968, or Section I of PACKING INSTRUCTION 969~970 of the 2017 IATA Dangerous Goods regulations 58th Edition may be transported and applicable U.S. DOT regulations for the safe transport of Lithium battery.

More information concerning shipping, testing, marking and packaging can be obtained from label master at http://www.labelmaster.com/.

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.

The materials and pack design shall be chosen so as to prevent the development of unintentional electrical

conduction, corrosion of the terminals and ingress of moisture.

The package must be handled with care and that a flammability hazard exists if the package is damaged;
Each package must be labeled with a Lithium battery handling label or in addition to the Class 9 hazard label.

With regard to transport, the following regulations are cited and considered:
- The International Civil Aviation Organization (ICAO) Technical Instructions.
- The International Air transport Association (IATA) Dangerous Goods Regulations.
UN number of lithium battery: UN3090 or UN3091;
UN Proper shipping name/Description (technical name): Lithium metal batteries or Lithium metal batteries contained in equipment or Lithium metal batteries packed with equipment;
UN Classification (Transport hazard class): Dangerous;;
Marine pollutant(Y/N): N;
- The International Maritime Dangerous Goods (IMDG) Code.
For Lithium metal Battery by sea, provided that packaging is strong and prevent the products from short-circuit.
UN number of lithium battery: UN3090 or UN3091;
UN Proper shipping name/Description (technical name): Lithium metal batteries or Lithium metal batteries contained in equipment or Lithium metal batteries packed with equipment;
UN Classification (Transport hazard class): Dangerous;;
Marine pollutant(Y/N): Y;
Special Provision: International maritime dangerous goods code (IMDG) 230, 310, 348, 957;
- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

Section 15 – Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

_____ Hazardous ___√___ Non-hazardous

Section 16 – Additional Information

The information above is believed to be accurate and represents the best information currently available to us. However, concorde makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This material safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

******End of report******