

**SECTION 1. CHEMICAL PRODUCT AND COMPANY NAME****Lithium-Ion Rechargeable Battery Pack  
BL1430B**Symbol  at the bottom of the battery.**Safety Data Sheet**Complies with the OSHA Hazard  
Communication Standard :  
29 CFR 1910 1200

Makita U.S.A., Inc. 14930-C Northam Street La Mirada, CA 90638	Prepared By :	Stan Rodrigues
	Date Revised:	08/03/2016

**EMERGENCY CONTACT INFORMATION****Telephone Number for Information:** MAKITA: 1-510-657-9881**Emergency Response**

For Chemical Emergency  
Spills, Leak, Fire, Exposure, or Accident  
Call CHEMTREC Day or Night  
Within USA and Canada 1-800-424-9300

**SECTION 2. HAZARD IDENTIFICATION:****Classification of the substance or mixture:**

**Preparation Hazards and Classification:** The product is a Lithium ion cell or battery and is therefore classified as an article and is not hazardous when used according to the recommendations of the manufacturer. The hazard is associated with the contents of the cell or battery. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the cell or battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the cell or battery is compromised and starts to leak, based upon the battery. Ingredients, the contents are classified as Hazardous.

**Hazard Summary****Physical hazards:** Not classified for physical health hazards.**Health hazards:** Not classified for health hazards.**Environmental hazards:** Not classified for hazards to the environment.**Specific hazards:** Exposure to contents of an open or damaged cell or battery contact with this material will cause burns to the skin, eyes and mucous membranes. May cause sensitization by skin contact.**Main Symptoms:-** Symptoms include itching, burning, redness and tearing.**Hazardous Materials Information Label (HMIS)**

Health: 0

Flammability: 1

Physical Hazard: 0

**NFPA Hazard Ratings**

Health: 0

Flammability: 1

Reactivity: 0

Unique Hazard:

## CONTINUED: SECTION 2. HAZARD IDENTIFICATION:

### GHS Precautionary Statement

<b>Precautionary Statement(s) Prevention</b>	P102: Keep out of reach of children. P103: Read label prior to use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces- No smoking. P234: Keep only in original container. P254: Wash hands thoroughly after handling.
<b>Response (If cell / battery leaks)</b>	P260: Do not breathe vapor or spray. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301/330/331: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. P303/361/353: IF ON SKIN {or hair}: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. P304/340: If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician. P363: Wash contaminated clothing before reuse. P370: In case of fire: Use carbon dioxide, dry chemical or water extinguisher.
<b>Storage (Store as indicated in Section 7)</b>	P402: Store in a dry place. P405: Store locked up. P410: Protect from sunlight.
<b>Disposal</b>	P406: Store any spilled/leaking electrolyte material in a corrosive resistant container with a resistant inner liner. P501: Dispose of batteries-in accordance with applicable hazardous waste regulations.
<b>Other Hazards</b>	
<b>Appearance, Color and Odor:</b>	Solid object with no odor.
<b>Primary Routes(s) of Exposure:</b>	These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell or pack is mechanically, thermally, electrically or physically 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.
<b>Potential Health Effect (s):</b>	
<b>Acute (short term):</b>	See Section 8 for exposure controls. In the event that this cell or pack has been ruptured, the electrolyte solution contained within the cell would be corrosive and can cause burns to skin and eyes.
<b>Inhalation:</b>	Inhalation of materials from a sealed cell is not an expected route of exposure. Vapors or mists from a ruptured cell may cause respiratory irritation.
<b>Ingestion:</b>	Swallowing of materials from a sealed cell is not an expected route of exposure. Swallowing the contents of an open cell can cause serious chemical burns to mouth, esophagus, and gastrointestinal tract.
<b>Skin:</b>	Contact between the cell and skin will not cause any harm. Skin contact with the contents of an open cell can cause severe irritation or burns to the skin.
<b>Eye:</b>	Contact between the cell and the eye will not cause any harm. Eye contact with the contents of an open cell can cause severe irritation or burns to the eye.
<b>CHRONIC (long term):</b>	See Section 11 for additional toxicological data.
<b>Interactions with other chemicals:</b>	Immersion in high conductivity liquids may cause corrosion and breaching of the cell or battery enclosure. The electrolyte solution inside of the cells may react With alkaline (basic) materials and present a flammability hazard.
<b>Potential Environmental Effects:</b>	Not Available.

### SECTION 3. COMPOSITION, INFORMATION OR INGREDIENTS

	Chemical Name	CAS No.	*Mass range in cell (g/g %)
Electrolyte	Contains Electrolyte salt and solvents.		5-20
Electrolyte salt	Lithium hexafluorophosphate	21324-40-3	0.05-5
Electrolyte solvent	Includes one or more of the-following; Ethylene Carbonate Propylene Carbonate Diethyl Carbonate	96-49-1 108-32-7 105-58-8	5-20
PVDF	Polyvinylidene fluoride	24937-79-9	<1
Copper	Cu	7440-50-8	3-15
Aluminum	Al	7429-90-5	2-10
Cathode	Lithium cobalt oxide	12190-79-3	20-50
Anode	Graphite	7782-42-5	10-30
Steel, Nickel, and inert components		Various	Balance
Because of the cell structure the dangerous ingredients will not be available if used properly. During charge process a lithium graphite intercalation phase is formed.			

### SECTION 4. FIRST AID MEASURE

<b>Description of first aid measures:</b>	The hazardous components of this cell or battery are contained within a sealed unit. The following measures are only applicable if exposure has occurred to components when a cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. The hazardous contents are caustic alkaline electrolytes contained in cells with lithium metal oxide cathodes, graphite and carbon anodes and Polyvinylidene fluoride binders.
<b>Ingestion:</b>	Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Quickly transport victim to an emergency care facility.
<b>Eye:</b>	If eye contact with contents of an open cell occurs, immediately flush the contaminated eye(s) with water. Quickly transport victim to an emergency care facility.
<b>Skin Contact:</b>	Immediately flush with water. If irritation or pain persists, seek medical attention.
<b>Inhalation:</b>	Remove the patient from exposure into fresh air, seek medical attention.
<b>Protection For First Aiders:</b>	Do not enter corrosive vapor contaminated areas without a respirator or Self Contained Breathing Apparatus. Wear adequate personal protective equipment as indicated in Section 8.
<b>First Aid Facilities:</b>	Eye wash bottle, fountain, safety showers or at least a source of running water are required in the area where the product is used.
<b>Most important symptoms &amp; effects acute &amp; delayed. caused by exposure:</b>	
<b>Acute:</b>	The contents of the battery are rated as corrosive. Ingestion of the electrolyte could lead to severe gastrointestinal tract irritation with nausea, vomiting and potentially burns. Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing. Eye contact may lead to severe eye irritation or in worst case scenario irreversible damage and possible eye burns. Skin contact may lead to irritation and possible skin burns.
<b>Chronic:</b>	Skin contact may aggravate/exacerbate existing skin conditions, such as dermatitis. Chronic inhalation may lead to the same symptoms as listed for acute inhalation above.
<b>Indication of any immediate medical attention and special treatment needed</b>	
<b>Advice to Doctor:</b>	Treat symptomatically if the person comes into contact with the corrosive electrolyte liquid contents of a damaged battery.

## SECTION 5. FIRE FIGHTING MEASURES

<b>Suitable extinguishing media:</b>	Cold water and dry powder in large amount are applicable. Use metal fire extinction powder or dry sand if only few cells are involved.
<b>Special hazards arising from the chemical:</b>	May form hydrofluoric acid if electrolyte comes into contact with water. In case of fire, the formation of the following flue gases cannot be excluded: Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.
<b>Protective equipment and precautions for firefighters:</b>	Wear self-contained breathing apparatus and protective suit.
<b>Additional information:</b>	If possible, remove cell (s) from firefighting area. If heated above 125°C, cell (s) can explode/vent. Cell is not flammable but internal organic material will burn if the cell is incinerated.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions, protective equipment and emergency procedures:</b>	As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed areas before entering. Wear adequate personal protective equipment as indicated in Section 8.
<b>Environmental precautions:</b>	Absorb spilled material with non-reactive absorbent such as vermiculite, clay or earth. Prevent from migration into soil, sewers and natural waterways -inform local authorities if this occurs.
<b>Methods and material for containment and cleaning up:</b>	Evacuate spill area immediately and remove sources of ignition. Do NOT touch spilled material. Cleanup personnel must be trained in the safe handling of this product. Spills may be absorbed on non-reactive absorbents such as vermiculite. Place cells or batteries into individual plastic bags and then Place into appropriate containers and close tightly for disposal. Ensure that cleanup procedures do not expose spilled material to any moisture. Immediately transport closed containers outside. Lined steel drums are suitable for storage of damaged cells or batteries until proper disposal can be arranged.

## SECTION 7. HANDLING AND STORAGE

<b>Precaution for Handling:</b>	Avoid short circuiting the cell. Avoid mechanical damage of the cell. Do not open or disassemble. Advice on protection against fire and explosion Keep away from open flames, hot surfaces and sources of ignition.
<b>Condition for storage:</b>	Storage at room temperature (approx. 20°C) at approx. 20- 60% of the nominal capacity (OCV approx. 3.6 - 3.9 V/cell). Keep in closed original container.

## SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>Exposure Control Measures</b>	
<b>Exposure Limit Values:</b>	Airborne exposures to hazardous substances are not expected when the cells or batteries are used for their intended purposes. Exposure standards are not applicable to the sealed articles.
<b>Biological Monitoring:</b>	Not applicable.
<b>Control Banding:</b>	Not applicable
<b>Recommended monitoring procedures:</b>	Follow standard monitoring procedures.
<b>Derived no-effect level (DNEL):</b>	Not applicable.

## CONTINUED: SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>Derived minimal effect level (DMEL):</b>	Not applicable.
<b>Predicted no-effect concentrations (PNECs):</b>	Not applicable.
<b>Engineering Controls</b>	
<b>Engineering Controls:</b>	Special ventilation is not required when using these products in normal use scenarios. Ventilation is required if there is leakage from the cell or battery.
<b>Individual Protection Measures</b>	
<b>Eye and Face Protection:</b>	Eye protection is not required when handling cells or batteries during normal use. Wear safety glasses/goggles if handling a leaking or ruptured cell or battery.
<b>Skin (Hand) Protection:</b>	Hand protection is not required when handling the cell or battery during normal use. PVC gloves are recommended when dealing with a leaking or ruptured cell or battery.
<b>Skin (Clothing) Protection:</b>	Skin protection is not required when handling the cell or battery during normal use. Wear long sleeved clothing to avoid skin contact if handling a leaking or ruptured cell or battery. Soiled clothing should be washed with detergent prior to re-use.
<b>Respiratory Protection:</b>	During routine operation, a respirator is not required.-However, if dealing with an electrolyte leakage and irritating vapors are generated, an approved half face inorganic vapor and gas/acid/particulate respirator is required.
<b>Thermal Protection:</b>	Not applicable.
<b>Other Protective Equipment:</b>	Have a safety shower or eye wash station readily available
<b>Hygiene Measures:</b>	Do not eat, drink or smoke in work areas. Avoid storing food, drink or tobacco near the product. Practice and maintain good housekeeping.
<b>Environmental Exposure Controls:</b>	Avoid release to the environment.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	
<b>Physical State:</b>	Solid
<b>Color:</b>	Various
<b>Odor:</b>	Odorless
<b>Important health, safety and environmental information</b>	
<b>Test Method</b>	
<b>pH Value:</b>	n.a.
<b>Flash Point:</b>	n.a.
<b>Lower Explosion Limits:</b>	n.a.
<b>Vapour Pressure:</b>	n.a.
<b>Density:</b>	n.a.
<b>Water Solubility:</b>	Insoluble
<b>Ignition Temperature:</b>	n.a.

## SECTION 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable
<b>Conditions to avoid:</b>	Keep away from open flames, hot surfaces and sources of ignition. Do not puncture, crush or incinerate.
<b>Materials to avoid:</b>	No materials to be especially mentioned.
<b>Hazardous decomposition products:</b>	In case of open cells, there is the possibility of hydrofluoric acid and carbon monoxide release.
<b>Possibility of Hazardous Reactions:</b>	Will not occur
<b>Additional information:</b>	No decomposition if stored and applied as directed.

## SECTION 11. TOXICOLOGICAL INFORMATION

<b>Information on toxicological effects:</b>	The hazardous components of the cell or battery are contained within a sealed unit. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the cell or battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the battery leaks, is exposed to high temperature or is mechanically, electrically or physically abused/damaged. <b>The following toxicology data is in respect to if a person comes into contact with the electrolyte.</b>
<b>Acute Toxicity:</b>	
<b>Swallowed:</b>	The electrolyte contained within the cell or battery is a corrosive liquid. Ingestion of this electrolyte would be harmful. Swallowing may result in nausea, vomiting, diarrhea, abdominal pain and chemical burns to the gastrointestinal tract. During normal usage ingestion should not be a means of exposure.
<b>Eye:</b>	The electrolyte contained within the cell or battery is a corrosive liquid and it is expected that it would cause irreversible damage to the eyes. Contact may cause corneal burns. Effects may be slow to heal after eye contact. Correct handling procedures incorporating appropriate eye protection should minimize the risk of eye irritation
<b>Skin:</b>	The electrolyte contained within the cell or battery is a corrosive liquid and it is expected that it would cause skin burns or severe irritation to the skin if not washed off immediately. Correct handling procedures should minimize the risk of skin irritation. People with pre-existing skin conditions, such as dermatitis, should take extreme care so as not to exacerbate the condition.
<b>Inhaled:</b>	Inhalation of vapors from a leaking cell or battery is expected to cause severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing.
<b>Skin Corrosion/Irritation:</b>	The electrolyte contained within the cell or battery is classified as a corrosive liquid and is expected to exhibit Dermal Corrosivity /Irritation.
<b>Serious Eye Damage/Irritation:</b>	The electrolyte contained within the cell or battery is classified as a corrosive liquid and is expected to exhibit serious Damage/Corrosivity.
<b>Respiratory or Skin Sensitization:</b>	The electrolyte contained within the cell or battery is not expected to be a skin sensitizer according to OECD test 406, based on the available data and the known hazards of the components. The electrolyte contained within the battery is not expected to be a respiratory tract sensitizer, based on the available data and the known hazards of the components.
<b>Germ Cell Mutagenicity:</b>	The electrolyte contained within the cell or battery is not expected to be mutagenic according to test such as OECD tests 471, 475, 476, 478 and 479, based on the available data and the known hazards of the components.
<b>Carcinogenicity:</b>	The electrolyte contained within the cell or battery is not expected to be a carcinogen. The cathode contains Cobalt and Nickel components. These components are classified as IARC 2B -possibly carcinogenic to humans, however they do not pose a threat when contained in the cell or battery sealed unit.

## CONTINUED: SECTION 11. TOXICOLOGICAL INFORMATION

<b>Reproductive Toxicity:</b>	The electrolyte contained within the cell or battery is not expected to be a reproductive hazard according to test Such as OECD tests 414 and 421, based on the available data and the known hazards of the components.
<b>Specific Target Organ Toxicity (STOT)- Single Exposure:</b>	The electrolyte contained within the cell or battery is corrosive and is expect to cause respiratory irritation by inhalation. Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing.
<b>Aspiration Hazard:</b>	The cells or batteries are not classified as an aspiration hazard, based on the available data and the known hazards of the components. However, due to the corrosive nature of the product if swallowed, do NOT induce vomiting. If vomiting has occurred after ingestion the person should be observed to ensure that aspiration into the lungs has not occurred and assessed for chemical burns to the gastrointestinal and respiratory tracts.

## SECTION 12. ECOLOGICAL INFORMATION

<b>Further information:</b>	Ecological injuries are not known or expected under normal use. Do not flush into surface water or sanitary sewer system.
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## SECTION 13. DISPOSAL CONSIDERATIONS

<b>Advice on disposal:</b>	For recycling consult manufacturer.
<b>Contaminated packaging:</b>	Disposal in accordance with local regulations.

## SECTION 14. TRANSPORT INFORMATION

- The cells in these batteries have been tested and meet the requirements for the UN Manual of Tests and Criteria, Part III, subsection 38.3.
- When a number of batteries are transported by ship, vehicle and railroad avoid high temperature and dew condensation.
- Avoid transportation which may cause damage of package.
- Lithium-ion batteries are not subject to dangerous goods regulation for the purpose of transportation by the International Maritime Dangerous Goods regulations (IMDG). For Lithium-ion batteries, the Watt-hour rating is no more than 20Wh /cell and 100Wh/ battery pack can be treated as "non-dangerous goods" by the United Nations Recommendations on the Transport of Dangerous Goods/Special Provision 188, provided that the products are prevented from being short-circuited with each other and are packaged in an appropriate condition which satisfies Packing Group II performance level.
- IATA (International Air Transport Association): Dangerous Goods Regulation Packing Instruction 965 (Lithium ion or lithium polymer cells and batteries without electronic equipment) went into effect April 1, 2016: Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. UN 3480, PI 965, Section IA and IB and II will be restricted to carriage on cargo aircraft. All packages must bear the Cargo Aircraft Only label in addition to the other marks and labels required by the Regulations.

Section II requirements apply to lithium-ion cells with a Watt-hour rating not exceeding 20 Wh and lithium-ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities that within the allowance permitted in Section II, Table 965-11.

**CONTINUED: SECTION 14. TRANSPORT INFORMATION:**

**TABLE 965-II**

Contents	Lithium-ion cells and/or batteries with a Watt-hour rating of 2.7 Wh or less	Lithium-ion cells with a Watt-hour rating of more than 2.7Wh but not more than 20Wh	Lithium-ion batteries with a Watt-hour rating of more than 2.7Wh but not more than 100Wh
Maximum number of cells / batteries per package	No limit	8 cells	2 Batteries
Contents	Lithium-ion cells and/or batteries with a Watt-hour rating of 2.7 Wh or less	Lithium-ion cells with a Watt-hour rating of more than 2.7Wh but not more than 20Wh	Lithium-ion batteries with a Watt-hour rating of more than 2.7Wh but not more than 100Wh
Maximum net quantity per package	2.5 kg	N/A	N/A

Lithium-ion cells and batteries meeting the requirements in this section are not subject to other additional requirements of these Regulations except for:

Lithium-ion cells and batteries meeting the requirements in this section are not subject to other additional requirements of these Regulations except for:

- Each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;
  - cells and batteries must be manufactured under a quality management program;
  - for batteries, The Watt-hour rating must be marked on the outside of the battery case;
  - Each package must be capable of withstanding a 1.2m drop test in any orientation without:
    - damage to cells or batteries contained therein;
    - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
    - release of contents.
- Each package must be labeled with a lithium battery handling label.

Section IB requirements apply to lithium-ion cells with a Watt-hour rating not exceeding 20 Wh and lithium-ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities that exceed the allowance permitted in Section II, Table 965-II.

Quantities of lithium-ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II must be assigned to Class 9 and are subject to all of the applicable provisions of Regulation.

Even classified as lithium batteries packed with equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 966 is applied.

Even classified as lithium batteries installed in equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 967 is applied.

**SECTION 15. REGULATORY INFORMATION**

**United States Federal and State Regulations:**

<b>TSCA Status:</b>	All ingredients in these products are listed on the TSCA inventory.
<b>OSHA:</b>	These products do not meet criteria as per Part 1910.1200, manufactured article.
<b>SARA EPA Title III:</b>	None
<b>Sec. 302/304:</b>	None
<b>Sec. 311/312:</b>	None
<b>Sec. 313:</b>	None
<b>CERCLA RQ:</b>	None

## SECTION 16. OTHER INFORMATION

### **Further Information:**

Data of Sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge. This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations. "(n.a. = not applicable; n.d. = not determined)

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.