REPORT NO.FJ2020060603

MATERIAL SAFETY DATASHEET

(MSDS)

Manufacturer/Importer: Evolt Pty Ltd

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UN Report Number: FJ20170918U01

Address: U5/105a Vanessa Street,
Kingsgrove, NSW 2208, Australia

1. PRODUCT IDENTIFICATION:

ORDER CODE	PRODUCT NUMBER	SKU
ZC-BATT-3000-1 Lithium ion($LiFePO_4$) rechargeable battery, 3000 mAh, 6.4V, 2 cell, 19.2Wh	9336462013038	01303

2. COMPOSITION / INFORMATION ON INGREDIENTS

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
Graphite (CAS# 7782-42-5)	**5mg/m³ TWA** (respirable fraction) **15mg/m3 TWA** (total dust)	**2mg/m³ TWA** (respirable fraction)	10~20
Lithium Hexafluorophosphate (CAS# 21324-40-3)	None established	None established	35~50
Lithium Hexafluorophosphate (CAS# 21324-40-3)	None established	None established	0~5
Acetylene Black (CAS# 1333-86-4)	**3.5mg/m³ r-NA** (as carbon black)	**3.5mg/m³ TWA** (as carbon black)	0~5
Diethyl Carbonate (CAS# 105-58-8)	None established	None established	0~20
Dimethyl Carbonate (CAS# 616-38-6)	None established	None established	0~20
Ethyl Methyl Carbonate (CAS# 623-53-0)	None established	None established	0~20
Propylene Carbonate (CAS# 108-32-7)	None established	None established	0~20
Ethylene Carbonate (CAS# 96-49-1)	None established	None established	0~20

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

3. HAZARDOUS IDENTIFICATION

GENERAL	
Chemical Nature	White color solid
CAS-No/EINECS Number	N/A
INCI CTFA-Description	Lithium ion rechargeable battery series
CONTACT TYPE	
Ingestion	No effect under routine handling and use
Inhalation	No effect under routine handling and use
Skin contact	No effect under routine handling and use
Skin absorption	No effect under routine handling and use
Eye contact	No effect under routine handling and use
Reported as carcinogen	Not applicable

4. FIRST AID MEASURES:

UNDER NORMAL CONDITIONS OF USE, THE BATTERY IS HERMETICALLY SEALED

Ingestion	Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.
Inhalation	Contents of an open battery can cause respiratory irritation. Inhalation of vapors may cause irritation of the upper respiratory tract and lungs. Provide fresh air and seek medical attention.
Skin absorption	Ethylene carbonate, diethyl carbonate and dimethyl carbonate may be absorbed through the skin causing localized inflammation.
Skin contact	Contents of an open battery can cause skin irritation and/or chemical burns. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.
Eye contact	Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

NOTE: Acetylene black is listed as possible carcinogens by the International Agency for Research on Cancer (IARC).

5. FIRE FIGHTING MEASURES

If fire or explosion occurs when batteries are on charge, shut off power to charger.

In case of fire where lithium ion batteries are present, flood the area with water. If any batteries are burning, water may not extinguish them, but will cool the adjacent batteries and control the spread of fire. C02, dry chemical, and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium ion batteries. Burning batteries will burn themselves out. Virtually all fires involving lithium ion batteries can be controlled with water. When water is used, however, hydrogen gas may be evolved which can form an explosive mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

Fire fighters should wear self-contained breathing apparatus. Burning lithium ion batteries can produce toxic fumes including HF, oxides of carbon, aluminum, lithium and copper. Volatile phosphorus pent fluoride may form at a temperature above 230° Fahrenheit.

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6. ACCIDENTAL RELEASE MEASURES

On hand	Place material into suitable containers and call local fire/police department.
In water	If possible. Remove from water and call local fire/police department

7. HANDLING & STORAGE

Handling	Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include jumbled batteries in bulk containers, coins, metal jewellery, metal covered tables, or metal belts used for assembly of batteries in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery. Should an individual cell within a battery become ruptured, do not allow contact with water.
Storage	The lithium ion battery should be between 25% and 75% of full charge when stored for a long period of time. Stored in a cool, dry and well ventilated area. Elevated temperatures can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Control	Keep away from heat and open flame. Stored in a cool dry place.
Personal Protection	Respiratory Protection: Not necessary under normal conditions
Eye/Face Protection	Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.
Gloves	Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.
Foot Protection	Steel-toed shoes recommended for large container handling.

9. PHYSICAL/CHEMICAL PROPERTIES

Physical state	Solid	Solubility in water	Not Applicable
Color	White	Vapor pressure	Not Applicable
Odor	No	Explosion limit	Not Applicable
Flash point	Not Applicable	Auto flammability	Not Applicable
Solubility in ethanol soluble	Not Applicable	Melting Point	Not Applicable
Boiling Point	Not Applicable	Freezing Point	Not Applicable

10. STABILITY & REACTIVITY

Stability	Good stability at standard temperature
Reactivity	None

NOTE: Avoid contact with water and acids. Hazardous decomposition products: If Alluminium package foil of battery is damaged, the battery should avoid to contact strong oxidizer, acids and high temperature, and the electrolyte will be formed HF.

11. TOXICOLOGICAL INFORMATION

This product does not elicit toxicological properties during routine handling and use.

12. ECOLOGICAL INFORMATION

If the battery is scrapped, it should be selected and disposed by professional company.

13. DISPOSAL CONSIDERATIONS

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

14. TRANSPORT INFORMATION

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment" ,or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" . when shipped in accordance with "Pl965-967 sec t' ion II 0 f IATA -DGR" or " spec1a l prov1s1on 188 0 f IMO -IMDG C o d e."

AIR TRANSPORTATION, ACCORDING TO IATA DGR 61ST EDITION	
UN Number	UN3480
Proper Shipping Name	Lithium Ion Batteries (limited lo a maximum of 30% SoC)
Hazard Class	Class 9
Packaging requirement	PACKING INSTRUCTION 965 of section 18
UN Number	UN3481
Proper Shipping Name	Lithium Ion Batteries Contained in Equipment
Hazard Class	Not restricted
Packaging requirement	PACKING INSTRUCTION 967 of section II
UN Number	UN3481
Proper Shipping Name	Lithium Ion Batteries Packed With Equipment
Hazard Class	Not restricted
Packaging requirement	PACKING INSTRUCTION 966 of section II

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14. -CONTINUES

SEA TRANSPORTATION, ACCORDING TO JMO IMDG CODE (AMEND 39-2018)	
UN Number	UN3480
Proper Shipping Name	Lithium Ion Batteries
Hazard Class	Not restricted
Special provision	sp188
Packaging instruction	Not-restricted goods
Ems number	F-A, S-1
UN Number	UN 3481
Proper Shipping Name	Lithium Ion Batteries Contained in Equipment
Hazard Class	Not restricted
Special provision	sp188
Packaging instruction	Not-restricted goods
Ems number	F-A, S-1
Proper Shipping Name	Lithium Ion Batteries Packed With Equipment
Hazard Class	Not restricted
Special provision	sp188
Ems number	F-A, S-1

NO.	ITEMS	RESULTS	REMARKS
1	Altitude simulation	Pass	Test 1 to 5 must be conducted in sequence on the same cell or battery
2	Thermal test	Pass	
3	Vibration	Pass	
4	Shock	Pass	
5	External short circuit	Pass	
6	Impact	Pass	
7	Overcharge	Pass	Only battery do need this test item
8	Forced Discharge	Pass	

The watt-hour rating of the battery models listed is not more than 1 OOWh. The product is safe for air/ sea transportation
Each package is labelled and well passed the 1.2m drop test.
The manufacture data is labelled on each battery.

15.REGULATORY INFORMATION

See ACGIH exposure limits information as noted in Section3.
US: This MSDS meets/exceeds OSHA requirements.
International: This MSDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-1993.