Material Safety Data Sheet

Section 1 Chemical Product and Company Identification

Product information battery Model: APP00317
Lithium-Ion Rechargeable cell Model: LiFun 586071
Nominal Voltage: 3.8V
Watt-hour Rating: 15.2Wh
Manufacturer: APACK.TECHNOLOGY CO., LTD.
Address: 6F, No. 653-2, Jhongjheng Rd., Sinjhuang Dist, New Taipei City 242, Taiwan
Telephone: +886-2-2903-1303

Section 2 Composition/Information on Ingredients

INGREDIENTS	Weight Percentage/%(about)	CAS No.
Cobaltic lithium oxide钴酸锂	35.05%	12190-79-3
Graphite powder石墨	15.98%	7782-42-5
Garbon black导电炭黑	0.79%	1333-86-4
Hexafluoropropylene-vinylidene fluoride copolymer氟共聚物	9.87%	9011-17-0
Dimethyl carbonate碳酸二甲酯	4.38%	616-38-6
Ethyl methyl carbonate碳酸甲乙酯	2.29%	623-53-0
Lithium hexafluorophosphate六氟磷酸锂	2.95%	21324-40-3
Ethylene carbonate(EC)碳酸乙烯酯	6.34%	96-49-1
Diethyl carbonate(DEC)二甲基碳酸酯	2.76%	105-58-8
Propylene carbonate(PC)丙烯碳酸酯	1.11%	108-32-7
Copper 铜	8.39%	7440-50-8
Styrene-butadiene rubber(SBR)丁苯橡胶	0.71%	61789-96-6
Aluminium 铝	9.38%	7429-90-5

Section 3 Hazards Identification

The lithium ion batteries are not hazardous used according to the instructions of manufacturer under normal conditions. In case of abuse, there's a risk of explode, rupture, fire, heat, leakage of internal components, which could cause casualty loss. Abuses include but not limited to the following cases: charge for a long time, short circuit, put into fire, whack with hard object, puncture with acute object, crush, break.

Section 4 First-aid Measures

The lithium batteries are not hazardous with eye and skin contact under normal circumstance. In case of fire or rupture, the leakage of internal hazardous substance and formation of hazardous substance would occur, take the following measures if contact with it:

Eye : Check for and remove any contact lenses. Immediately flush with plenty of clean water for atlest 15 minutes, seek medical assistance;

Skin: Immediately flush with plenty of clean water for 15 minutes; seek medical assistance if severe;

Inhalation: If inhaled, remove to fresh air immediately, seek medical assistance, and ventilate the contaminated area.

Ingestion: Rinse mouth with clean water immediately, activate vomit under the direction of expert, and seek medical assistance.

Section 5 Fire-fighting Measures

Extinguish with plenty of water, dry powder extinguishers, sands, earth. Combustion products and decomposed products by contact of water or air with internal substance include: carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.

Section 6 Accidental Release Measures

When leakage of batteries happens, liquid could be absorbed with sands, earth or other inert substance, and the contaminated area should be ventilated meantime.

Section 7 Handling and Storage

Don't handle and store batteries with metalwork. Store and use far away from heat, sparks, open flame, or any other ignition source, and under room temperature (<30°C) in ventilating and dehumidifying environments.

Section 8 Exposure Controls/Personal Protection

There is no need for protect under normal conditions.Inengineering aspect,ventilationequipment should beinstalled. Gas mask, blinkers,glovesenduring chemicalerosion anexposure suit are required when dealing with fire and leakage.

Section 9 Physical and Chemical Properties

Batteries are not single chemical material; there are no specific physical and chemical properties such as melting point and boiling point. Main purpose of lithium batteries: used in portable and digital products.

Section 10 Stability and Reactivity

Batteries are safe under normal conditions. The following substance might appear after catching fire or leakage: organic carbonate, hydrogen fluoride, carbon monoxide, carbon dioxide, phosphorus fluoride.

Section 11 Toxicological Information

Batteries are not hazardous when used properly.If the batteries catch fire or the internal substance leaks, combustion products and decomposed products might have irritation and toxicity to skin, eye and respiratory systems. Toxicity data of some substance are listed following:

Hydrogen fluoride:

Extremely toxic. May be fatal if inhaled or ingested. Readily absorbed through the skin contact may be fatal. Possible mutagen.LCLo: 50 ppm/30m (human beings)，LC50： 1276 ppm/1h（rats）。

Carbon and graphite:

Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.Causes chronic damage to upper respiratory tract and cardiovascular system.

Copper: Dust may cause respiratory irritation.LD50: 3.5 mg kg^{-1}(mouse). Aluminium: There is no hazard.

Section 12 Ecological Information

There is no influence to ecology and environment when used properly.

Section 13 Disposal

Deserted batteries couldn't be treated as ordinary trash. Be put to garbage box which recycle batteries after being placed into plastic bags or bedealt as special trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. The package and plastic box which contain batteries could be treated as ordinary trash. Best way is

recycling.

Section 14 Transport Information

For the international transport of lithium batteries, they must comply with these regulations: the International Maritime Dangerous Goods (IMDG) Code by International Maritime Organization (IMO), Dangerous Goods Regulations (DGR) by International Air Transport Association (IATA) and Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI) by International Civil Aviation Organization (ICAO). These regulations are based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.

Lithium batteries which meet the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3) could be transported by air and by sea as ordinary goods, otherwise should be transported according to Class 9, Packing Group I hazardous goods.

According to UN classification: However this product's shipping name is "lithium ion batteries"(or "Lithium ion Batteries packed with equipment" or "Lithium ion Batteries contained in equipment"), it is not recognized as "DANGEROUS GOODS" when its transport condition accords with "packing instruction 965 section IB of IATA-DGR"(or "Packing instruction 966 section II" or "Packing instruction 967 section II") or "special provision 188 of IMO-IMDG Code".

1. For lithium ion batteries, UN ID number is 3480. For lithium ion batteries contained in equipment or lithium ion batteries packed with equipment, UN ID number is 3481.
2. The consignment should be fully described by proper shipping name and packed, marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of the 62nd edition of IATA DGR "Dangerous Goods Regulations" in 2021, Dangerous goods regulation and all applicable carrier and government regulations.
3. For transported by air, Lithium-ion Cells/Batteries shipped as "Not Restricted" Cargo: Must comply with section IB of PI965 or section II of PI967 accordingly; For cells, the Watt-hour rating should not be more than 20Wh; For batteries, the Watt-hour rating should not be more than 100Wh. Watt-hour rating must be marked on the outside of the battery case (marked by manufacturer),

4. Each consignment must be accompanied with a document such as an air waybill with anindication. For those Lithium ion cells/ batteries contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for Apack Battery is +886-2-2903-1303.
5. Quantity per package shall not exceed 10 kg.
6. Each package must be capable of withstanding a 1.2m drop test in any orientation without damage of cells or batteries contained therein.
7. Lithium batteries which meet the requirements of A154 could be transported by air, and the batteries manufactured by Apack meet these requirements.(A154 Lithium batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, thathave the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.)
8. Cells and batteries must be 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.
9. Transport condition should accord with "special provision 188 of IMO-IMDG Code".

Section 15 Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

_____ hazardous___√___Non-hazardous

Section 16 Other Information

This information is not effective to all the batteries manufactured by Apack. This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. Apack doesn't assume responsibility for any damage or loss because of misuse of batteries. Users should grasp the correct use method and be responsible for the use of batteries.

Prepared:  Audited: