



Material Safety Data Sheet

NAME OF SAMPLE: Lithium Polymer Rechargeable Battery

Type/Mode: Universal model

ADVANCED ELECTRONICS ENERGY LIMITED

Material Safety Data Sheet

No.: AE-MSDS-2018-A-012

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1、 Chemical product and company identification	
Name of samples	Lithium Polymer Rechargeable Battery
Type/Model	Universal model
Manufacturer	ADVANCED ELECTRONICS ENERGY LIMITED
Manufacturer address	NO. 6 HUA TIAN NAN YI RD, HI-TECH INDUSTRIAL ZONE, RONGGUI, SHUNDE, FOSHAN CITY, GUANG DONG PROVINCE, P. R. CHINA
Inspection according to	EEC Directive 93/112/EC UN "Recommendations on the TRANSPORT OF DANGEROUS GOODS"
Emergency telephone call	0757-28307929
Date of Issue	03-JAN-2018

2、 Composition information			
Components	Approximate Percent of Total Weight	CAS Number	EINECS#
Aluminum	2-10%	7429-90-5	231-072-3
Aluminum (Various Forms)	5-15%	7429-90-5	231-072-3
Carbon (Various Forms)	10-30%	7440-44-0	231-153-3
Copper	5-15%	7440-50-8	231-159-6
Lithium Cobalt Oxide	20- 40%	12190-79-3	235-362-0
Lithium Salts	1-5%	21324-40-3	244-334-7
Nickel	0.5-5%	7440-02-0	231-111-4
Organic Carbonate	10-25%	102-09-0	203-005-8
Polymer	3-10%	9002-88-4	/

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3、 Hazards identification

Explosive risk	This article does not belong to the explosion dangerous goods
Flammable risk	This article does not belong to the flammable material
Oxidation risk	This article does not belong to the oxidation of dangerous goods
Toxic risk	This article does not belong to the toxic dangerous goods
Radioactive risk	This article does not belong to the radiation of dangerous goods
Mordant risk	This article does not belong to the corrosion of dangerous goods
Other risk	This article is Polymer Lion Battery, which belong to the Lithium ion batteries (including lithium polymer batteries)

4、 First aid measures

In case of contacting the materials from a damaged / ruptured cell or battery:

Eye contact: Rinse eyes with water at least 15 minutes and seek medical attention.

Skin Contact: Wash area thoroughly with soap and water and seek medical attention.

Inhalation of Vented Gas: Leave area immediately and seek medical attention.

Ingestion: Seek medical attention immediately.

5、 First aid measures

Flash Point: N/A.

Auto-Ignition Temperature: N/A.

Extinguishing Media: Water, CO2.

Special Fire-Fighting Procedures

Self-contained breathing apparatus.

Unusual Fire and Explosion Hazards

Cell may vent when subjected to excessive heat-exposing battery contents.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide, lithium oxide fumes.

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6、 Accidental release measures

Steps to be taken in case Material is Released or Spilled:

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

Waste Disposal Method:

It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery, and to bury the discharged battery in soil..

7、 Storage and Handling

The battery should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.

Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire.

Do not crush or puncture the battery, or immerse in liquids.

Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

Other Precautions

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

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8、 Exposure Controls / Personal Protection

Respiratory Protection

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

Ventilation

Not necessary under conditions of normal use.

Other Protective Clothing or Equipment

Not necessary under conditions of normal use.

Personal Protection is recommended for venting battery

Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

9、 Physical and chemical properties

Appearance: Prismatic shape

Ref. No.: T1850472 01

Odour: If leaking, smells of medical ether.

pH: Not applicable as supplied.

Flash Point: Not applicable unless individual components exposed.

Flammability: Not applicable unless individual components exposed.

Relative density: Not applicable unless individual components exposed.

Solubility (water): Not applicable unless individual components exposed.

Solubility (other): Not applicable unless individual components exposed.

10、 Stability and reactivity

Stability: The product is stable under normal conditions.

Conditions to avoid:

Do not subject Nickel metal hydride 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.

Materials to avoid: Oxidising agents, alkalis, water.

Hazardous Decomposition Products: Toxic Fumes, and may form peroxides.

Hazardous Polymerization: N/A.

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

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11、Toxological Information

Signs & symptoms: None, unless battery ruptures.

In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

Inhalation: Lung irritant.

Skin contact: Skin irritant

Eye contact: Eye irritant

Ingestion: Poisoning if swallowed

Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to server irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

12、Ecological Information

Mammalian effects: None known at present.

Eco-toxicity: None known at present.

Bioaccumulation potential: Slowly Bio-degradable.

Environmental fate: None known environmental hazards at present.

13、Disposal procedures

Do not incinerate, or subject cells to temperature in excess of 70°C, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

14、Transportation Information

The rechargeable lithium ion battery pack or cells are make in compliance to the requirement stated in the latest edition of 59th edition 2018 IATA DGR Dangerous Goods Regulations Packing Instruction 965-967 section II (shown table):

Packing Instruction	PI965 IA	PI965 IB	PI965 section II	PI966 section II	PI967 section II
Standard	Cell: >20Wh Battery : >100Wh	Cell: ≤ 20Wh Battery : ≤ 100Wh			
Packages Requirement	Class 9 label Consignments require DGD UN Specification Package Required: PAXlimit:5kgG/package CAOlimit:35KgG/package	Class 9 label Lithium battery label Required:10kg G/package	Lithium battery label Required:No more than 8pcs/package	Lithium battery label Required:5kg G/package	Lithium battery label Required:5kg G/package

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If Cell: 20Wh / cell or Battery / pack: $\leq 100\text{Wh}$, The batteries are also considered to be non-dangerous by the INTERNATIONAL MARITIME DANGEROUS GOODS regulation (IMDG) code. The battery is secured effectively to prevent short circuit and movement leading to short circuit. The battery is also over packed with strong packaging materials.

If Cell: $>20\text{Wh}$ / cell or Battery / pack: $>100\text{Wh}$, The batteries are considered to be dangerous by the INTERNATIONAL MARITIME DANGEROUS GOODS regulation (IMDG). The batteries shall meet the requirement of "Recommendations on the Transport of Dangerous Good - Manual of Tests and Criteria, Part III, sub-section 38.3. Batteries shall be shipped as class 9 hazardous materials.

15、 Regulation Information

With regards to transport, the following regulations are cited and considered

- 15.1: The International Civil Aviation Organization (ICAO) Technical Instructions (2017-2018 Edition)
- 15.2: The International Air Transport Association (IATA) Dangerous Goods Regulations (Edition 59th 2018 of the IATA regulation)
- 15.3: The International Maritime Dangerous Goods (IMDG) Code (37-14 Edition)
- 15.4: US Hazardous Materials Regulations 49 CFR (Code of Federal Regulations) sections 173-185 Lithium Batteries and cells.
- 15.5: The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 lithium Batteries, 5th revised edition amendment 3 (UN3480, UN3481).
- 15.6: The United Nations special provisions concerning the carriage of dangerous goods by SP188

16、 Other Information

This information is not effective to all the batteries manufactured by Advanced Electronics Energy Limited. This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. Users should grasp the correct use method and be responsible for the use of batteries.