

MATERIAL SAFETY DATA SHEET(MSDS)

Report No.: BCT180103A156

Date: Jan 3rd, 2018

Revision: 4.2

Page: 1 of 5

1. Product and Company Identification

Applicant : Shenzhen Lidea Battery Co., Ltd.

Address : 3/F., No.5 Bldg., Houhai Xufa Tech. Park, No. 8, Zhenxing Rd.,
Loucun, Gongming, Guangming, Shenzhen, China. ZIP: 518106

Sample name : Manganese Dioxide Lithium Battery

Model : CR927、CR1025、CR1130、CR1216、CR1220、CR1225、CR1612、
CR1616、CR1620、CR1632、CR1654、CR2016、CR2025、CR2032、
CR2050、CR2320、CR2325、CR2330、CR2335、CR2354、CR2412、
CR2430、CR2450、CR2477、CR2477T、CR3032、CR3048、CF103035

Receive Date : 2017-12-23

Completion Date : 2018-01-03

Contact person : Pasion He

Telephone number : +86-755-2517 9975

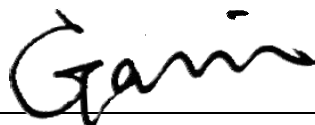
Fax number : +86-755-2517 9976

Emergency telephone : +86-755-2517 9975

Email : sales@lideabattery.com

Service specifications : Material safety data sheet(MSDS) for the product

Authorized signature



Lab Manager



2018-01-03

2. Hazards Identification

GHS Classification : Not applicable

Hazard : Electrolyte and lithium metal are inflammable.

Risk of explosion by fire if batteries are disposed in fire or heated above 100 degrees C.

Stacking or jumbling batteries may cause external short circuits, heat generation, fire or explosion.

Toxicity : Vapor generated from burning batteries, may irritate eyes, skin and throat .

3. Composition/Information of Ingredients

Component	Material	CAS No.	EC No.	Content (%)
Positive electrode	Manganese dioxide	1313-13-9	215-202-6	12~50
Negative electrode	Lithium metal	7439-93-2	231-102-5	0.5~6
Electrolyte	1,2-dimethoxyethane	110-71-4	203-794-9	1.5~3.5
	Lithium Perchlorate	7791-03-9	232-237-2	0.2~0.7
	Propylene Carbonate	108-32-7	203-572-1	2.5~7
Others (Steel or Plastic parts)	Stainless Steel	12597-68-1		30~85
	Polypropylene	9003-07-0		0.5~10

Lithium content per cell

Model Number	Lithium content(g)	Model Number	Lithium content(g)	Model Number	Lithium content(g)	Model Number	Lithium content(g)
CR927	0.009	CR1616	0.015	CR2050	0.11	CR2430	0.09
CR1025	0.009	CR1620	0.02	CR2320	0.05	CR2450	0.18
CR1130	0.009	CR1632	0.036	CR2325	0.06	CR2477	0.29
CR1216	0.008	CR1654	0.06	CR2330	0.08	CR2477T	0.29
CR1220	0.01	CR2016	0.02	CR2335	0.09	CR3032	0.17
CR1225	0.015	CR2025	0.05	CR2354	0.17	CR3048	0.22
CR1612	0.01	CR2032	0.06	CR2412	0.03		

4. First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact : Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.

Skin contact : Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.

Inhalation : Remove to fresh air immediately. Take a medical treatment.

5. Fire Fighting Measures

- Extinguishing method : Since vapor, generated from burning batteries may make eyes, nose and throat irritates, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.
- Fire extinguishing agent : Alcohol-resistant foam and dry sand are effective.

6. Accidental Release Measures (in case of electrolyte leakage from the battery)

- Take up with absorbent cloth.
- Move the battery away from the fire.

7. Handling and Storage

Handling:

- When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that the single batteries are not mixed together.
- Use strong material for packaging boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation.
- Do not short-circuit, recharge, deform, throw into fire or disassemble.
- Do not mix different type of batteries.
- Do not solder directly onto batteries.
- Insert the battery correctly in electrical equipment.

Storage:

- Do not let water penetrate into packaging boxes during their storage and transportation.
- Do not store the battery in places of the high temperature or under direct sunlight
- Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, rain or frozen condition.

8. Exposure Controls and Personal Protection (in case of electrolyte leakage from the battery)

Acceptable concentration : Not specified in ACGIH.

Facilities : Provide appropriate ventilation system such as local ventilator in the storage place.

Protective Equipment (in case of electrolyte leakage from the battery)

Respiratory Protection : Self-Contained Breathing Apparatus for organic gases.

Hand Protection : Safety glove.
Respiratory Protection : Safety goggle.

9. Physical and Chemical Properties

Appearance : Coin shape
Voltage : 3 V

10. Stability and Reactivity

Since batteries utilize a chemical reaction they are actually considered a chemical product.

As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

11. Toxicological Information (in case of electrolyte leakage from the battery)

Acute toxicity : Oral (rat) LD50 > 2,000mg/kg (estimated)
Irritation : Irritating to eye and skin.
Mutagenicity : Not specified.
Chronic toxicity : Not specified.

12. Ecological Information

In case of the worn-out battery was disposed in land, the battery case may be corroded, and leak electrolyte. Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell.

13. Disposal Considerations

When the battery is worn out, dispose of it under the ordinance of each local government.

14. Transport Information

During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to condensation.

During the transportation do not allow packages to be fallen down or damaged.

Proper shipping Name : Lithium metal batteries.
UN Number, UN Class : UN3090, Class 9 (for the Air transport by PI968 Section I A or I B)
Irritation : Exemption (for the Marine transport and the Air transport by Section II of PI968, 969 or 970).

Even though the cells are classified as lithium metal batteries (UN3090 or UN3091), they are not subject to some requirement of Dangerous Goods Regulations because they meet the following:

1. For cells, the lithium content is not more than 0.3g;
2. Each cell is of the type proven to meet requirements of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3;
3. Each cell is manufactured in ISO9001 certified factory.

Please refer to the following reference information about concrete ways of transportation. Actual content of packaging label and shipping documents varies by shipping companies. Make sure to confirm in advance with your shipping company.

Information of reference

	Reference	Packing Instruction (PI) Special provision	Note
Air transport	IATA DGR	PI 968 Section I A	Cells, Cargo Aircraft only; Net quantity per package Max. 35kg
		PI 968 Section I B	Cells, Cargo Aircraft only; Net quantity per package Max. 2.5kg
		PI 968 Section II	Cells, Cargo Aircraft only; not more than one package in any single consignment; Net quantity per package Max. 2.5kg
		PI 969 Section II	Cells packed with equipment
		PI 970 Section II	Cells contained in equipment
Marine transport	IMDG Code	SP188	

Note. This does not apply to lithium metal batteries packed with equipment (PI969) or contained in equipment (PI 970)

Lithium Content Per Cell	Product Name	Air *See Section 15			Marine *See Section 15
		Cell only	Cell packed with equipment	Cell contained in equipment	
Not more than 0.3 g	All Lithium Metal Button Cell	PI968 Section II	PI969 Section II	PI970 Section II	SP188
More than 0.3 g but not more than 1 g	(No)	PI968 Section IB (8 or less cells : Section II)	PI969 Section II	PI970 Section II	SP188
More than 1 g	(No)	PI968 Section IA	PI969 Section I	PI970 Section I	SP230

15. Regulatory Information

- IATA Dangerous Goods Regulations 58th Edition (IATA DGR)
- IMO International Maritime Dangerous Goods Code 2014 Edition (IMDG Code)
- UN Recommendations on Transportation of Dangerous Goods, Model Regulations
- UN Recommendations on Transportation of Dangerous Goods, Manual of Tests and Criteria
- EU Battery Directive (2013/56/EU)

16. Other Information

This MSDS is provided to customers as reference information in order to handle batteries safely.

It is necessary for the customer to take appropriate measures depending on the actual situation such as the individual handling, based on this information.

(END)