

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. Get immediate medical treatment. If appropriate procedures are not taken, this may cause eye injury.
- 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. Get medical treatment immediately.

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, treat cloth as inflammable.
- Move the battery away from the fire.

7 Handling and Storage

- 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 mix different type of batteries.
- Do not solder directly onto batteries.
- 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 clothing : Self-Contained Breathing Apparatus for organic gases, safety goggle, and safety glove.

9 Physical and Chemical Properties

- Appearance : Coin shape
- Voltage : 3 volts

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 = 200 2,000mg/kg (estimated)
- Irritation : Irritating to eye and skin.
- Mutagenicity : Not specified.
- Chronic toxicity : Not specified.

12 Ecological Information

In case the worn-out battery is disposed of on land, the battery case may corrode and leak electrolyte.

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 dropped or damaged.

Proper shipping name : Lithium metal batteries

UN Number, UN Class : UN3090, Class9 (for the Air transport by PI968 Section IA or IB)

: Exemption (for the Marine transport and the Air transport by Section II of PI 968, 969 or 970)

Even though the cells are classified as lithium metal batteries (UN3090 or 3091) they are not subject to some requirements 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 the requirements of each test in the UN Manual of Tests and Criteria, Part , 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(SP)	Note
Air transport	IATA (2)(5)	PI 968 Section A	Cells, Cargo Aircraft only; Net quantity per package Max. 35kg
		PI 968 Section B	Cells, Cargo Aircraft only; net quantity per package Max. 2.5kg
		PI 968 Section	Cells, Cargo Aircraft only, not more than one package in any single consignment; net quantity per package Max. 2.5kg
		PI 969 Section	Cells packed with equipment
		PI 970 Section	Cells contained in equipment, button cell batteries
Marine transport	IMDG (3)	SP 188	

15 Regulatory Information

IATA Dangerous Goods Regulations

ICAO Technical Instructions for the safe transport of dangerous goods by air

16 Other Information

This PSDS 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.

References

- (1) UN Recommendations on the Transportation of Dangerous Goods, Model Regulations
- (2) IATA Dangerous Goods Regulations 57th Edition 2016
- (3) IMO International Maritime Dangerous Goods Code 2014 Edition
- (4) UN Recommendations on the Transportation of Dangerous Goods, Manual of Tests and Criteria
- (5) IATA Dangerous Goods Regulations 57th edition Effective 1 January 2016
ADDENDUM

(END)

SAFETY DATA SHEET (SDS)

SECTION 1: Product and Company Identification

Product Name	<u>MS Lithium Rechargeable Battery</u>
Model Name:	MS621FE (with Tab)
Nominal Voltage:	3.0 V
Nominal Capacity:	5.5 mAh (3.1 V-2.0 V)
Manufacturer	Seiko Instruments Inc. Micro-Energy Division
Address:	45-1, Aza Matsubara, Kamiyashi, Aoba-ku, Sendai-shi, Miyagi, Japan
Telephone:	+81-22-391-9331 Facsimile: +81-22-391-9330
Seller	Seiko Instruments Inc. Micro-Energy Division Sales Department
Address:	8, Nakase 1-chome, Mihama-ku, Chiba-shi, Chiba, Japan
Telephone:	+81-43-211-1735 Facsimile: +81-43-211-8034
Emergency Contact	International / call +81-22-391-9331 (Seiko Instruments Inc.) North America / call 800-424-9300 (CHEMTREC)

SECTION 2: Hazards Identification

GHS Classification	Not applicable
Effects to Human body	When swallowed, the battery can melt, and it might cause inflammation in stomach or intestine.
Possibility of Fire ignition	When exposed to fire or extreme heat, it may catch fire, generate heat, leakage or it may burst.

SECTION 3: Composition/Information on Ingredients

Substance/Preparation	Article
Important Note	The battery should not be opened or burned, because the following ingredients listed below are contained in it. Its post-discharge or its combustion products could be harmful.

Materials or Ingredients

Part Name	Material Name	CAS No.
Anode	Lithium-Silicon composite oxide	10097-28-6/based material
Cathode	Lithium-Manganese composite oxide	-
Solute	Lithium imide salt	-
Solvent	Cyclic carbonate and Chain ether	-
Cases	Nickel plated stainless steel	-
(Tab)	Nickel plated stainless steel	-
(Solder)	100% of Tin	7440-31-5

SECTION 4: First Aid Measures

None unless exposed to internal materials. If contents leak, observe the following instructions:

- Inhalation: Fumes can cause respiratory irritation. Ensure the person has fresh air and consult a physician.
- Skin: Immediately wash the skin with plenty of water. If itchiness or irritation due to chemical burns persists, consult a physician.
- Eyes: Immediately rinse the eye with plenty of water.
- Ingestion: If a battery is swallowed, consult a physician immediately. If the contents come into contact with the mouth, immediately rinse with of water and consult a physician.

SECTION 5: Fire Fighting Measures

How to Extinguish Use fire extinguisher (for Lithium Battery) or Sand.

Keep away the batteries from heat sources to avoid a fire. Please do not expose the battery to very high temperature to prevent an explosion and the generation of harmful gas.

SECTION 6: Accidental Release Measures

N/A (Not Applicable)

SECTION 7: Handling and Storage

- Handling**
- Do not charge by higher current or higher voltage than specified.
 - Do not heat, disassemble nor dispose of in fire.
 - Do not solder directly to the battery. Do not short.
 - Do not reverse placement of (+) and (-).
 - Do not discharge by force.
 - In case of leakage or a strange smell, keep away from fire to prevent ignition of any leaked electrolyte.
 - In case of disposal, insulate between (+) and (-) of battery by an insulating material.
 - If leaked liquid gets in the eyes, wash them with clean water and consult a physician immediately.
 - Do not use new and used batteries together. Do not use different types of batteries together.
 - If you connect two or more batteries in series or parallel, please consult us in advance.
 - Do not use nor leave the batteries in direct sunlight nor in high-temperature areas.
 - Do not apply strong pressure to the batteries nor handle roughly.
 - Avoid contact with water.
- Storage**
- Keep batteries out of children's reach.
 - Keep batteries away from direct sunlight, high temperature and humidity.
 - Avoid having the batteries touch each other, because short-circuit causes ignition, leakage, or rupture.

SECTION 8: Exposure Controls / Personal Protection

The battery is sealed with a metal can in order to avoid leakage of harmful gas or liquid. Follow the instructions in the SECTION 7.

Respiratory Protection: N/A
 Protective Gloves: N/A
 Eye Protection: N/A
 Skin or Body Protection: N/A

SECTION 9: Physical and Chemical Properties

Shape Button battery
Chemical System Lithium-Manganese composite oxide/ Lithium-Silicon composite oxide
Rechargeable YES NO

SECTION 10: Stability and Reactivity

Stability: Stable
 Condition to Avoid: See section 7
 Hazardous Mixture: N/A
 Hazardous Decomposition or Byproducts: N/A

SECTION 11: Toxicological Information

N/A

SECTION 12: Ecological Information

N/A

SECTION 13: Disposal Considerations

Dispose of the battery in accordance with the respective national, federal, state, and local regulations.

SECTION 14: Transport Information

United Nations Number UN3090 (battery in apparatus :UN3091)
Shipping Name Lithium metal battery
UN Hazard Classification Class 9
Regulation Each organizations of transportation has defined the following regulations. Their regulations are based on the United Nations Regulations, Each special provision provides specifications on exceptions and packaging for lithium batteries shipping.

Method	Organization	Regulation	Special Provision
Air	IATA/ICAO	DGR/TI	Section II of PI968-970 A88, A99, A154, A165, A183, A201
Marine	IMO	IMDG Code	SP188
U.S.A	DOT	49CFR	49CFR Section 173, 185

When battery is conveyed with packing of SII ; This Lithium metal batteries, NOT RESTRICTED as per Section II of PI 968. (Only packing for overseas)

<Lithium Content>	The Lithium content is not more than 1.0 g. ※The Lithium of this battery is 0.0032 g, and conforms to a standard.
<Safety Certification>	Each cell is of a type proven to meet the requirement of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. ※This battery has satisfied the UN38.3 test.
<Strong Packaging>	Cells are separated so as to prevent short circuits and are packed in strong packaging. (The cell together with apparatus is excepted.)
<Caution Label>	Each packages must be displayed a battery handling label. (Telephone number must be printed for emergency call on the handling label.)
<CAO Label>	Each packages for air transport must be displayed Cargo Aircraft Only label.
<Not Restricted Declaration>	Each consignment must be accompanied with a declaration of Not Restricted goods document. (Telephone number must be printed for emergency call on the handling label.)
<Package Drop Test>	Each package must be capable of withstanding a 1.2 m drop test. (The cell together with apparatus is excepted.)
<Weight>	The maximum net quantity of one package is restricted in air transport, 2.5 kg or less for lithium metal cells. (The cell together with apparatus is excepted.)

SECTION 15: Regulatory Information

- United Nations Regulations
- ICAO Technical Instructions for the safe transport of dangerous good by air
- IATA Dangerous Goods Regulations

SECTION 16: Other Information

SDS is not applied to products that are used in a sealed condition. So, we do not have the obligation to publish this document since the battery corresponds to the condition above. But, we offer this document for reference. The data and evaluation results written on this document was known at the time of preparation, but it is not something that is guaranteed.

References

- (1) UN Recommendations on the Transport of Dangerous Goods - Model Regulations (Rev.18) Manual of Tests and Criteria (ST/SG/AC. 10/11/Rev.5)
- (2) Federal Register/ Vol.65, No.174/ Sep. 7, 2000/ Notices Transportation of Lithium Batteries
- (3) IATA Dangerous Goods Regulations 56th Edition

End of Documents.