

SAFETY DATA SHEET (SDS)

Articles, such as batteries, are exempt from GHS SDS classification criteria. Therefore, this document is provided as reference information for the safe handling of the product. The information set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, Seiko Instruments Inc. makes no warranty, either express or implied, with respect to this information and disclaims all liability from reference on it.

SECTION 1: Product and Company Identification

Product Name MS Lithium Rechargeable Battery

Model Name: MS412FE (with Tab)
 Nominal Voltage: 3 V
 Nominal Capacity: 1.0 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, 989-3124 Japan
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 Electronic Components Sales Head Office
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Emergency Contact International / call +81-22-391-9331 (Seiko Instruments Inc.)
 North America / call +1-800-424-9300 (CHEMTREC)

SECTION 2: Hazards Identification

GHS Classification Not applicable

The chemical compositions are sealed inside the battery. However, if the battery is used improperly, electrolyte and gas will leak from the inside and may irritate the eyes, skin, and throat, so please strictly observe the safety instructions.

The electrolyte and lithium contained in the battery are inflammable. If heated or short-circuited, it may generate heat and ignite or explode.

SECTION 3: Composition and Information on Ingredients

Chemical Classification Article (Not Substances or Mixtures)

Main Materials and Main 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	-
	1,2-dimethoxyethane (EGDME)	110-71-4
	-	-
Cases	Nickel plated stainless steel	-
(Tab)	Nickel plated stainless steel	-
(Surface Treatment)	Tin 100%	7440-31-5

[MS Lithium Rechargeable Battery]

SECTION 4: First Aid Measures

In the case of a leakage (e.g. electrolyte) from the can, take the following measures:

- Inhalation : Fumes can cause respiratory irritation. Remove to fresh air and seek medical treatment immediately.
- Skin contact : Immediately rinse with plenty of clean water and seek medical treatment.
- Eyes contact : Immediately rinse with plenty of clean water and seek medical treatment.
- Ingestion : Rinse mouth with clean water and seek medical treatment immediately.

In the case of ingestion of a battery :

Swallowing coin cells can cause chemical burns, perforation of soft tissue and, in severe cases, death. Seek medical assistance promptly.

SECTION 5: Fire Fighting Measures

Fire extinguishing agent : Dry sand and expanded vermiculite are effective.

- Do not use water to extinguish the fire because lithium reacts with water.
- Vapor generated from burning batteries may irritate the eyes, nose, and throat. Wear respiratory protection equipment and extinguish the fire on the windward side.

SECTION 6: Accidental Release Measures

The battery is sealed to prevent leakage of gas and liquid. Should liquid leak from the battery, wipe it off with a dry rag and move the battery away from the fire.

SECTION 7: Precautions During Handling and Storage

Handling

- Keep out of reach of children.
- Do not charge using a higher current or voltage than specified.
- Do not heat or throw into a fire.
- Do not deform or disassemble.
- Do not short-circuit. Do not connect wires to the terminals, stack batteries, or carry or store them with metal products such as necklaces and hairpins.
- Do not connect the terminals in reverse.
- Do not weld or solder directly.
- Do not swallow the battery. Seek medical advice immediately if a battery has been swallowed.
- Do not allow children to replace batteries without adult supervision.

Storage

- Store in their original packaging to prevent short circuits.
- Keep dry.
- Do not store in places of the high temperature, high humidity, or under direct sunlight.

SECTION 8: Exposure Controls / Personal Protection

The battery is sealed to prevent leakage. There is no need of personal protective equipment on regular handling and storage. Should a large amount of liquid (electrolyte) leak from the batteries, wear protective equipment.

- Respiratory Protection: Protective mask with a filter preferably
- Hands Protection: Safety gloves
- Eye Protection: Safety goggles and/or glasses for chemicals

SECTION 9: Physical and Chemical Properties

Shape	Coin-type
Chemical System	Lithium-Manganese composite oxide/ Lithium-Silicon composite oxide
Rechargeable	(YES) / NO

SECTION 10: Stability and Reactivity

Stability:	Stable on regular handling and storage
Condition to Avoid:	See section 7

SECTION 11: Toxicological Information

There is no toxicity because the chemical compositions are sealed inside the battery.

SECTION 12: Ecological Information

It has been confirmed that there is almost no outflow of metal when exhausted batteries are landfilled in the ground. There is no other environmental impact information.

SECTION 13: Disposal Considerations

When disposing of this battery, insulate the terminals with tape or other means before disposal to prevent a short circuit due to contact between the battery and metal.

Dispose in accordance with applicable federal, state, and local regulations.

SECTION 14: Transport Information

United Nations Number	UN3090 (Batteries contained in equipment; or batteries packed with equipment; UN3091)
Shipping Name	Lithium metal batteries
UN Hazard Classification	Class 9

This product can be transported as non-dangerous goods because it meets the transportation conditions listed in the Special provision 188.

<Lithium content>	Less than 1g. ※The Lithium content of this battery is 0.0008 g.
<Safety Certificate>	Each cell or battery must be of the type proven to have met the requirements of every test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. ※This battery has passed the UN 38.3 test and is manufactured in a factory that has acquired ISO 9001 based on the quality program.
<Packaging for preventing short circuit >	Except when the battery is contained in equipment, it must be stored to prevent short circuit and wrapped in a sturdy container or packaging.
<Label & Marking display>	Appropriate labeling and marking are required for each package.
<Packing Drop test>	Except when the battery is contained in equipment, every package must be capable of withstanding a 1.2 m drop test.

International Transportation Regulations

Method	Organization : Regulation	United Nations Number	Packaging instruction and special provision applicable to this product	
Air	IATA:DGR ICAO:ICAO TI	Lithium Metal Batteries(UN3090)	PI968	Section IB (Dangerous Goods)
		Packed with equipment(UN3091)	PI969	Section II (Not Dangerous Goods)
		Contained in equipment(UN3091)	PI970	Section II (Not Dangerous Goods)
Marine	IMO:IMDG code		SP 188 *2, 3	

- *1 Batteries packed with equipment and batteries contained in equipment can be transported as non-dangerous goods if certain conditions are met.
- *2 When this product is transported on the sea while satisfying the special provision SP 188, it can be transported as non-dangerous goods. However, each package should not exceed 30 kg. (Not subjected to batteries contained in equipment or packed with equipment.)
- *3 Please confirm the details of each packing criteria, be sure to carry out the required packaging labeling and shipper's declaration for dangerous goods, etc. Also, as every country and transportation company have their own regulations. please check in advance.

SECTION 15: Regulatory Information

- IATA Dangerous Goods Regulations 65th Edition
- UN Recommendations on the Transport of Dangerous Good : Model Regulations
- UN Recommendations on the Transport of Dangerous Good : Manual of Test and Criteria
- EU Battery Regulation:Regulation(EU)2023/1542

SECTION 16: Other Information

If you need further information, please contact your local sales representative.

End of Documents.