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## SAFETY DATA SHEET (SDS)

### SECTION 1: Product and Company Identification

**Product Name** ML Lithium Rechargeable Battery  
Model Name: ML414H (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, Japan  
Telephone: +81-22-391-9331 Facsimile: +81-22-391-9330

**Seller** Seiko Instruments Inc.  
Electronic Components Sales Head Office  
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 +1-800-424-9300 (CHEMTREC)

### SECTION 2: Hazards Identification

**GHS Classification** Not applicable

**Effects to Human body** When time has passed since battery was swallowed, it might cause inflammation in esophagus, stomach or intestine.

**Possibility of Fire ignition** When exposed to fire or extreme heat, it may catch fire, generate heat, liquid leak or it may burst. And the generated steam may cause irritation of throat, eyes and skin.

### SECTION 3: Composition/Information on Ingredients

**Substance/Preparation/Article** Article

**Important Note** The battery should not be opened or burned, because the following ingredients listed below are contained in it. It may generate gas.

#### Main Materials and Main Ingredients

Part Name	Material Name	CAS No.
Anode	Lithium-Aluminium alloy	-
Cathode	Lithium-Manganese composite oxide	-
Solute	Lithium imide salt	-
Solvent	Cyclic carbonate and Chain ether	-
	1,2-Diethoxyethane (EGDEE)	629-14-1
Cases	(+) Nickel plated stainless / (-) Aluminium-Stainless-Nickel plated	-
(Tab)	Nickel plated stainless steel	-
(Surface Treatment)	Tin 100%	7440-31-5

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#### SECTION 4: First Aid Measures

If contents leak, observe the following instructions:

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

#### SECTION 5: Fire Fighting Measures

**How to Extinguish** Use fire extinguisher (for Lithium Battery) , Sand or foam (spray) fire extinguishing equipment.

Burning battery may generate toxic gas, so wear a respiratory protective equipment. Extinguishing by water may cause a reaction of Metallic Lithium and the water, and it may cause bursting and scattering .

#### SECTION 6: Accidental Release Measures

If liquid (electrolyte) leaks from the battery, wipe off the liquid with a waste clothes, and place it in a ventilated space without direct sunlight or fire.

#### 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-circuit.
  - 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 such as a tape.
  - 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 give a shock to the batteries nor hurl it.
  - Avoid contact with water.
- Storage**
- Keep batteries out of children's reach.
  - Keep batteries away form direct sunlight, high temperature and humidity.
  - Please keep the batteries dry. Do not get it wet with water etc.
  - Avoid having the batteries touch each other, because short-circuit causes ignition, leakage, or rupture.

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**SECTION 8: Exposure Controls / Personal Protection**

The battery is sealed with a metal can in order to avoid leakage of harmful gas or liquid. When handling in accordance with the preceding paragraph, usually no protective equipment is required. Wear protective equipment when liquid (electrolytic solution) leaks from the main body.

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-Aluminium alloy  
 Rechargeable YES / NO

**SECTION 10: Stability and Reactivity**

Stability: Stable at normal handling  
 Condition to Avoid: See section 7

**SECTION 11: Toxicological Information**

When normal handling, this battery is not noxious to the human body because the content sealed with cases.

**SECTION 12: Ecological Information**

There is no ecological information particularly.

\*It is reported that batteries leaked almost no metal ingredients even if buried in the ground.

**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 (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 0.0004 g.

<Safety Certificate> Each cell or battery must be of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.  
 \*This battery was manufactured by the factory that acquired ISO 9001 based on the quality program, and passed the UN 38.3 test.

<Packaging for preventing short circuit > Except when batteries contained in equipment, it must be to prevent short circuit and wrapped in a strong container or packaging.

<Label & Marking display> Appropriate labeling and marking are required for each package.

<Packing Drop test> Except when batteries contained in equipment, each package must be capable of withstanding a 1.2 m drop test.

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Method	Organization		Packaging instruction and special provision applicable to this product		
Air	IATA:DRG ICAO:ICAO TI	Lithium Metal Batteries(UN3090)	PI968	Section IB (Dangerous Goods) Section II (Not Dangerous Goods)	*1, 3
		Packed in equipment(UN3091)	PI969	Section I (Dangerous Goods) Section II (Not Dangerous Goods)	
		Contained with equipment(UN3091)	PI970	Section I (Dangerous Goods) Section II (Not Dangerous Goods)	
Marine	IMO		SP188 *2, 3		

\*1 It can be transported as a non-dangerous good if the following conditions are satisfied (Cargo Aircraft Only), because Lithium content is not more than 0.3 g in a battery.

- Packaging remains our shipment condition.
- 1 cargo is within 1 overpack (maximum net amount (battery weight) 2.5 kg or less).
- It meets Section II of PI 968, DRG .

\*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, it should not exceed 30 kg per packaging. (Battery contained in equipment or packed with equipment are not subject to this.)

\*3 Please confirm details of each packing criteria, be sure to carry out required packaging display and shipper's declaration for dangerous goods, etc. Also, as there are regulations by each country and each transportation company, please check in advance.

#### SECTION 15: Regulatory Information

- United Nations Regulations
- EU Battery Directive : Directive 2006/66/EC and Directive 2013/56/EU
- EU REACH Regulation

#### 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) IATA Dangerous Goods Regulations 61st Edition.

End of Documents.

