

## Safety data sheet for chemical products

### 1.PRODUCT AND COMPANY IDENTIFICATION

- Product name: Manganese Dioxide Lithium Primary Battery
- Model: CR17450SE-R

- Company name: Sanyo Electric Co.,Ltd. Mobile Energy Company
- Address: 222-1, Kaminaizen , Sumoto City ,Hyogo ,Japan
- Telephone number +81-799-24-4111
- Telefax number: +81-799-24-4129
- Emergency telephone number: [Weekday] +81-799-23-2924  
[Night and holiday] +81-799-24-4131

### 2.COMPOSITION / INFORMATION ON INGREDIENTS

- Substance or preparation: Preparation
- Information about the chemical nature of product:

Common chemical name / General name	CAS number	Concentration / Concentration range	Classification and Hazard labeling
Manganese Dioxide	1313-13-9	40-50%	Specific hazards
Lithium metal	7439-93-2	3.3% *	Water forbiddance
Mixture solvent of carbonate and ether		10-20%	Inflammability
Lithium Perchlorate (LiClO <sub>4</sub> )	7791-03-9		

\* Weight of Lithium per cell : 0.72g

### 3.HAZARDS IDENTIFICATION

- Most important hazard and effects: No information is obtained.
- Specific hazards: Since chemicals are contained in a sealed can, there are no hazards.  
Lithium metal of contents sets off a chemical burn if it touches a skin.
- Emergency overview may also be given: The time when the battery is mechanically or electrically abused and when short circuit occurs.

### 4.FIRST-AID MEASURES

- Inhalation: In case content's vapor caused by blowout of a battery is inhaled, move to a place having fresh air immediately
- Skin contact: In case the content adheres to a skin, wash away with water and soap immediately.
- Eye contact: In case the content goes into an eye, wash away with much water for more than 15 minutes.
- Ingestion: A medical examination of a doctor is received quickly.

### 5.FIRE-FIGHTING MEASURE

- Suitable extinguishing media: Carbonic acid gas, powder, foam, atomized water
- Specific methods of fire fighting: Take batteries to a safe place not to be burnt down in a spreading fire.  
In case batteries packaged in a box burn, since burning material is paper, use a water extinguisher, a CO<sub>2</sub> extinguisher, and a powder extinguisher as a normal extinguisher.
- Special equipment for the protection of firefighters:  
Hand protection: a pair of flame-proof groves  
Eye protection: face mask  
Protective wear of skin and/or body: protective clothing

**6.ACCIDENTAL RELEASE MEASURES**

- Personal precautions: In case release is small and continues for short time, health condition does not turn bad.
- Environmental precautions: Extinguish it quickly, or the bad odor will smoke up because the fire gets left for some time.
- Cleaning method: Solid content gets moved into a container. In case of the scatter, wipe it on a dry towel.
- Prevention of secondary hazards: In case of Lithium metal, it causes fever reacted by water in the air, ignition may occur deal with accidental release quickly.

**7.HANDLING AND STORAGE**

- Handling
  - Prevention of user exposure: No problem on regular handling
  - Prevention of fire and explosion: No problem on regular handling
  - Precaution for prevention of local emission and powder dust:: No problem on regular handling
- Storage
  - Technical measures: measures to avoid direct rays, high temperature, and high humidity
  - Incompatible products: Combustible things, conductive things (metal: cause of shot circuit)
  - Storage conditions (suitable): Low temperature and low humidity (a cool and dark place)
  - Storage conditions (to be avoid): High temperature and high humidity, and direct rays
  - Packing material (recommended): Excellent flame resisting, incombustible, and insulated material

**8.EXPOSURE CONTROLS / PERSONAL PROTECTION**

- Engineering measures: regular handling doesn't cause scatters. If it should happen by destruction of batteries and so on, however, operate local emission device, or clear the air well
- Control parameters

Common chemical name / General name	ACGIH	
	TLV-TWA	BEI
Manganese dioxide	Mn: 0.2mg/m <sup>3</sup>	
Lithium metal		
Mixture solvent of carbonate and ether		
Lithium Perchlorate (LiClO <sub>4</sub> )		

ACGIH :American Conference of Governmental Industrial Hygienists ,Inc.

TLV-TWA :Threshold Limit Value-time weighted average concentration

BEI :Biological Exposure Indices

- Personal protective equipment
  - There in no need on regular handling. Use the protections shown below when contents leaking out of batteries are dealt with.
  - Respiratory protection: Mask( with a filter preferably)
  - Hand protection: Synthetic rubber grove
  - Eye protection: Goggle or glass

## 9.PHYSICAL AND CHEMICAL PROPERTIES

- Appearance  
Physical state: Solid(SUS material)  
Form: Cylindrical type  
Color: Metallic color  
Smell: odorless
  - PH: Not applicable because of insolubility in water.
  - Specific temperature/humidity at which physical state changes: No information because of mixture.
  - Density: not mentioned because this product is a mixture.
  - Solubility: insolubility in water
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## 10.STABILITY AND REACTIVITY

- Stability : Stable on regular handling
  - Conditions to avoid: External short circuit of battery , deformation by crush, exposure at high temperature of more than 85 degree C (cause heat generation and ignition) direct ray, high humidity
  - Materials to avoid: Water, a chain, and a piece of metal that causes short circuit.
  - Hazardous decomposition product: Emitted acrid or poisonous gases in fire.
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## 11.TOXICOLOGICAL INFORMATION

- Since chemicals are contained in a sealed can, there are no hazards.

Components of Chemical substances are shown below.

### Manganese Dioxide

Acute toxicity: rabbit \*<sup>1</sup> : LD<sub>0</sub>(blue pipe)=45mg/kg, mouse\*<sup>2</sup>: LD<sub>50</sub>(subcutaneous)=422mg/kg

Local effects: Stimulus to an eye, a nose, a throat, and a skin

Chronic toxicity or long-term toxicity: Inhale powder dust or fume for a long time (at least 3 months), and that may cause specific central nerve symptom like Parkinson's disease.

Reproduction toxicity: Mouse\*<sup>3</sup> inhalation TCL<sub>0</sub>=49mg/m<sup>3</sup>

### Lithium metal

Acute toxicity: No information in a metal state

Local effects: Touching on a skin or an eye causes thermal burn and alkaline's chemical burn.

### Carbonate

Acute toxicity: No information at present

Local effects: Slight stimulus to an eye

### Ether

Acute toxicity: Rat\*<sup>4</sup> oral LD<sub>50</sub>=7000mg/kg

Local effects: Light stimulus to a skin

### Lithium Perchlorate (LiClO<sub>4</sub>)

Acute toxicity: No information at present

Local effects: stimulus to a skin, a throat, an eye, and a nose.

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## 12.ECOLOGICAL INFORMATION

- Possible environment impact/ ecotoxicity: Chemical substances do not influence on an environment because of being sealed in metal container.
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### 13.DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal  
Product(waste from residues): Pack used batteries into an inner box not to tumble down to be short-circuiting. Pack the inner boxes into an outer box besides, and dispose of it by industrial-waste disposal company consignment-constructed.  
Contaminated packaging: Container and/or package is/are not contaminated on regular usage.  
In case contents leaking out of batteries adhere, deal with that as industrial waste subject to special control.
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### 14.TRANSPORT INFORMATION

- In the case of transportation, confirm no leakage and no overspill from a container. Take in a cargo of them without falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to Section 7-HANDLING AND STORAGE also.
- Codes and classifications according to international regulations for transport air:  
IATA-DGR : Packing Instruction 968  
The UN classification number : Class 9 3090  
However, since it corresponds to special provision 188 of UN-DGR, this battery cell can be conveyed normally.
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### 15.REGULATORY INFORMATION

- Regulations specifically applicable to the product :  
IATA-DGR  
UN-DGR UN 3090, UN3091  
US Department of Transportation 49 Code of Federal Regulations [USA]  
Wastes Disposal and Public Cleaning Law [Japan]
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### 16.OTHER INFORMATION

- This material safety data sheet is offered in order to have handling safe about dangerous detrimental chemicals carried out.
  - The entrepreneur who deals with it needs to consider this material safety data sheet as reference, and needs to devise suitable disposal in an entrepreneur's responsibility.
  - Numerical values, such as a content and the physical-chemistry-characteristic, are not guarantee values among the written contents.
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- Reference

- \*1 Journal of the D.I Mendeleeva All-Union Chemical Society.  
(V/O Mezhdunarodnaya knija, 113095 Moscow, USSR) V.5-1960
  - \*2 Merck Index; an Encyclopedia of Chemicals, Drugs, and Biologicals, 11<sup>st</sup> ed.,  
Rahway, NJ 07065, Merck & Co., Inc. 1898
  - \*3 Federation of American Societies for Experimental Biology (Bethesda, MD) V.1-46, 1942-87
  - \*4 Ube Industries, LTD Chemical & plastic Division ( internal measured data)
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Create Date : Jan. 7, 2009  
Creation Department : Sanyo Electric Co., Ltd  
Mobile Energy Company  
Lithium Battery Division  
Lithium Engineering Department  
Technical Service Section

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