

## Material Safety Data Sheet

### Section 1 - Chemical Product and Company Identification

**Product Name:** Manganese Dioxide Primary Lithium Battery

**Nominal Voltage:** See below table

**Battery Type:**

Type	Lithium(gr. )	Nominal Voltage
CR-P2	0.98	6V
CR-9V	0.93	9V

energy inside GmbH  
Ludwig-Elsbett-Straße 8  
97616 Salz  
Germany  
info@energyinside.de

Note: the battery is neither substance nor mixture but product and having no risk to life and the health under normal use or transportation because ingredients of battery is not leaked out by virtue of hermetical sealing with metal case.

This sheet notifies possible risk of our battery under abnormal use but mainly aim to provide information about ingredients, notification of handing and transportation regulations as a useful reference.

### Section 2 – Composition/Information on Ingredient

Material	CAS No.	Contents
Manganese Dioxide	1313-13-9	30~50 wt%
Lithium metal	7439-93-2	2~4 wt%
Electrolyte[Mixture of organic solvent]	—	10~20 wt%

### Section 3 - Hazards Identification

The important hazards and adverse effects of the chemical product	No information available
Chemical product - specific hazards	No information available

Outline of an anticipated emergency	Chemical contents are sealed in metal can. Therefore, risk of exposure never occurs unless battery is mechanically or electrically abuse. Risk of explosion by fire is anticipated if batteries are disposed of in fire of heated above 100 degree Celsius. Stacking or jumbling of batteries may cause external short circuits, heat generation, in some case, allowing fire or explosion.
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Note: Our battery is not classified in accordance with the GHS classification.

#### Section 4 - First Aid Measures

Eye	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Inhalation	Remove from exposure and move to fresh air immediately. Use oxygen if available.
Skin	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
Ingestion	Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

#### Section 5 - Fire extinguishing agent

Fire extinguishing agent:

Dry chemical, alcohol resistant foam, powder, atomized water, carbon dioxide dry sand are effective.

Extinguisher method:

Escape batteries to safe place prevent from ignition by spreading fire.

Because packaging material of battery is paper, use water extinguisher, CO2 extinguisher or powder extinguisher as normal extinguisher.

Since vapor, generated from burning batteries may take eyes, nose and throat irritate, be Sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.

#### Section 6 - Accidental Release Measures

- **Steps to be Taken in case Material is Released or Spilled**

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

- **Waste Disposal Method**

It is recommended to discharge the battery to the end, handing in the abandoned

batteries to related department unified, dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental protection agency and/or federal EPA.

## Section 7 - Handling and Storage

The battery should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

- **Precautions to be taken in Handling and Storing**

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided.

Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

- **Other Precautions**

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures.

Do not short or install with incorrect polarity.

## Section 8 - Exposure Controls, Personal Protection

- **Respiratory Protection**

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

- **Ventilation**

Not necessary under conditions of normal use.

- **Protective Gloves**

Not necessary under conditions of normal use.

- **Other Protective Clothing or Equipment**

Not necessary under conditions of normal use.

Personal Protection is recommended for venting battery: Respiratory protection, Protective gloves, protective clothing and safety glass with side shields.

## Section 9 - Physical and Chemical Properties

State : Solid  
Shape : Prismatic

## Section 10 - Stability and Reactivity

- **Stability**

Stable

- **Conditions to Avoid**

Heating, mechanical abuse and electrical abuse.

- **Hazardous Decomposition Products**

N/A.

- **Hazardous Polymerization**

N/A.

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

## Section 11 - Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

## Section 12 - Ecological Information

When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

## Section 13 - Disposal Considerations

- **APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION**

If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not reaction or unconsumed lithium remaining in the spent battery. The battery must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in authorized facility, through licensed waste carrier.

## Section 14 - Transport Information

According to PACKING INSTRUCTION 968 ~ 970 of IATA DGR 54<sup>th</sup> Edition for transportation, or the special provision 188 of IMDG.

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>.

Separate battery when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.

**Transport Fashion:** By air, by sea.

**Packaging Information:** Packaging paper+ Plastic tray.

## Section 15 - Regulatory Information

● **Law Information**

- 《Dangerous Goods Regulation》
- 《Recommendations on the Transport of Dangerous Goods Model Regulations》
- 《International Maritime Dangerous Goods》
- 《Technical Instructions for the Safe Transport of Dangerous Goods》
- 《Classification and code of dangerous goods》
- 《Occupational Safety and Health Act》 (OSHA)
- 《Toxic Substances Control Act》 (TSCA)
- 《Consumer Product Safety Act》 (CPSA)
- 《Federal Environmental Pollution Control Act》 (FEPCA)
- 《The Oil Pollution Act》 (OPA)
- 《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》  
(SARA)
- 《Resource Conservation and Recovery Act》 (RCRA)
- 《Safety Drinking Water Act》 (CWA)
- 《California Proposition 65》
- 《Code of Federal Regulations》 (CFR)

In accordance with all Federal, State and Local laws.

**Section 16 - Additional Information**

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.