

## MATERIAL SAFETY DATA SHEET

### 1. Chemical Product and Company Identification

Brand: Vinnic

Product Name: Alkaline Manganese Button Cell (Mercury Free)-Battery

Item No.: L1345F、L1335F、L1325F、L1315F、L1028F、L1022F、L1016F、L1010F、  
L828F、L822F、L816F、L810F

Manufacturer: Chung Pak Battery Works Ltd.

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Telephone: (00852)27171338

Effective Date: 2016/01/01

Note: Blank space are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

### 2. Composition/Information on Ingredients

Designation		Alkaline Manganese Button Cell (Mercury Free)-Battery
Chemical Composition	CAS No.	wt%
Zinc (Zn)	7440-66-6	5~11
Manganese Dioxide (MnO <sub>2</sub> )	1313-13-9	14~31
Potassium Hydroxide (KOH)	1310-58-3	2~5
Graphite (C)	7782-42-5	1~6
Iron (Fe)	7439-89-6	30~62
Mercury (Hg)	7439-97-6	≤0.0001
Cadmium (Cd)	7440-43-9	≤0.0010
Lead (Pb)	7439-92-1	≤0.0040

### 3. Hazards Identification

No specific health hazards for normal use.

Routes of Entry: Eyes, Skin, Inhalation, Ingestion.

Health Hazards:

Sign/Symptoms of Exposure:

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a battery vents. Leaking material exposure to skin, eyes may cause irritation. Inhalation of fumes may cause respiratory irritation.

May be a reproductive hazard. Leaking can cause thermal and chemical burns upon contact with the skin.

### 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.

**Skin:** Get medical aid at once. Immediately remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Discard contaminated clothing in a manner which limits further exposure.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. Use oxygen if available. Use oxygen device such as mask or bag.

**Ingestion:** Do not include vomiting. Get medical aid immediately.

**Note to Physician:** May be toxic to the body. Wash out the solution with water promptly in a emergency. Treat symptomatically and supportively.

## **5. Fire Fighting Measures**

**Extinguishing Media:** Water, CO<sub>2</sub>, dry chemical.

**Firefighting:** In case of fire in an adjacent area, use water, CO<sub>2</sub> or dry chemical extinguishers if the battery in their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpackaged batteries use suitable extinguishers. In this case, do not use water.

## **6. Accidental Release Measures**

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

If the battery is accidentally broken and electrolyte leaks out, 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 battery to related department unify, dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

## **7. Handling and Storage**

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

**Other Precautions:** Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

## **8. Exposure Control, Personal Protection**

**Respiratory Protection:** In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. 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 batteries: respiratory protection, protective gloves.

Protective clothing and safety glass with side shields.

## **9. Physical and Chemical Properties**

Nominal Voltage: 1.5V.

Appearance Characters: Silver, cylindrical, with odorless battery.

## **10. Stability and Reactivity**

Stability: Stable.

Condition to Avoid: Elevated temperatures fire and ignition sources, mechanical abuse and electrical abuse.

Hazardous Decomposition Products: N/A.

## **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 irritation to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

Zinc: Skin: 300ug/3 Days. Reaction: Mild.

Manganese Dioxide: Acute oral toxicity LD50 (Rat): >3478 mg/kg.

## **12. Ecological Information**

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

## **13. Disposal Considerations**

Appropriate Method of Disposal of Substance or Preparation:

Dispose of the battery in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

## **14. Transport Information**

Alkaline Manganese Button Cell (Mercury Free) is exempt from dangerous goods. It is considered non-dangerous goods by the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), International Maritime Dangerous Goods regulations (IMDG), the 《Recommendations on the Transport of Dangerous Goods Model Regulations》 (17<sup>th</sup>) and also is not classified as dangerous goods under the 57<sup>th</sup> Edition of the IATA Dangerous Goods Regulation 2016 Special Provision A123.

Separate batteries 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, by road.

## **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.

## **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.

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