

MATERIAL SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification			
Products Name	Alkaline Zinc-Manganese Dry Battery		
Manufacture Name	Dongguan Chuanxi Electronics Co.,Ltd		
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MSDS Code	DGCXI-MSDS017		
Date Prepared	2018-01-01		
Section 2. Composition/Information on Ingredients			
Chemical Name	Molecule formula	CAS No.	Weight (%)
Zinc	Zn	7440-66-6	23%~27%
Manganese dioxide	MnO ₂	1313-13-9	27%~31%
Carbon	C	7782-42-5	3%~4%
Polypropylene	(C ₃ H ₆) _n	9003-07-0	2%~3%
Copper	Cu	7440-50-8	1%
Potassium hydroxide	KOH	1310-58-3	4.5%~5.5%
Water	H ₂ O	7732-18-5	8%~9%
Iron	Fe	7439-89-6	17%~19%
Chromium	Cr	7440-47-3	4%~5%
Nickel	Ni	7440-02-0	1.5%~2.5%
Section 3. Hazards Summarizing			
Reference as follow if contact Potassium hydroxide.			
Eye	Causes severe eye burns. May cause irreversible eye injury. Contact may cause ulcerations of the conjunctiva and cornea. Eye damage may be delayed.		
Skin	Causes skin burns. May cause deep, penetrating ulcers of the skin.		
Inhalation	Irritation may lead to chemical pneumonitis and pulmonary edema. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.		
Ingestion	Harmful if swallowed.		
Health Hazards	These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is		

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(Acute and Chronic)	mechanically or electrically abused. The most likely risk is acute exposure when a battery vents.
Sign/Symptoms of Exposure	A shorted battery can cause thermal and chemical burns upon contact with the skin. May be a reproductive hazard.
Section 4. First Aid Measures	
Eyes	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 induce vomiting. Call a physician immediately.
Note to Physician	May be toxic to the body. Wash out the solution with water promptly in an emergency. Treat symptomatically and supportively.
Section 5. Fire Fighting Measures	
Flash Point	N/A
Auto-Ignition Temperature	N/A
Extinguishing Media	Dry chemical, CO ₂ .
Special Fire-Fighting Procedures	Self-contained breathing apparatus.
Unusual Fire and Explosion Hazards	Cell may vent when subjected to excessive heat-exposing battery contents.
Hazardous Combustion Products	Carbon monoxide, carbon dioxide, lithium oxide fumes.
Section 6. Accidental Release Measures	
Steps to be Taken in case Material is Released or Spilled	If the battery is accidentally broken and 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 batteries to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled material 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,

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	and federal requirements. Consult state environmental protection agency and/or federal EPA.
Section 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 over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.	
Precautions to betaken 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	Batteries 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 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.
Section 9. Physical and Chemical Properties	
Nominal Voltage	1.5V
Appearance characters	Blue and golden with odorless columned solid.
Section 10. Stability and Reactivity	
Stability	Stable for normal.
Conditions to Avoid	Elevated temperatures fire and ignition sources, mechanical abuse and electrical abuse.
Hazardous Decomposition	When exposed to fire or extreme heat, batteries may emit toxic fumes.

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Products	
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 irritation 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 Dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental agency.	
Section 14. Transport Information	
Large batteries are considered to be "Dry cell" batteries and are unregulated for purpose of transportation by the U.S. DOT, ICAO, IATA and IMDG. The only DOT requirement for shipping these batteries is special provision 130 which states: " Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (For example, by the effective insulation of exposed terminals). The only requirement for shipping these batteries by ICAO and IATA is Special Provision A123 which states: " An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transportation." The international Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special Provision 304 which says : Batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the provision of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc carbon, nickel metal hydride and nickel-cadmium batteries. Such batteries have been packed in inner packaging in such a manner as to effectively prevent short circuit and movement that could lead to short-circuit.	
Transport Fashion: By air, by sea, by railway, by highway.	
Section 15. Regulatory Information	
Law Information 《Dangerous Goods Regulation 57th Editon》 《Recommendations on Transport of Dangerous Goods Model Regulations》 《International Maritime Dangerous Goods 37-14 Editon》	

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《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 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. Other 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 maybe 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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