

SAFETY DATA SHEET

Issuing Date 12-May-2015

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Revision Number 3



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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name MITSUBISHI Carbon Zinc Battery 6F22

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Carbon Zinc Battery

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Name GUANGZHOU TIANQIU ENTERPRISE CO., LTD.

Supplier Address 9/F TianQiu Building No.16-30, He Yi Rd., San Yuan Li Ave., GuangZhou China
GUANGZHOU
GUANDONG
510410
CN

Supplier Phone Number Phone:8620-13825131170
Fax:8620-36322277
Contact Phone13825131170

Supplier Email idsale6@gztianqiu.com

Emergency telephone number

2. HAZARDS IDENTIFICATION

Classification


This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Gases)	Category 4



Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2

GHS Label elements, including precautionary statements

Emergency Overview		
Signal word	Warning	
Hazard Statements		
Harmful if inhaled		
Suspected of causing cancer		
May cause damage to organs through prolonged or repeated exposure		
		
<p>This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist.</p>		
Appearance Blue	Physical state Solid	Odor Odorless

Precautionary Statements - Prevention

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Use only outdoors or in a well-ventilated area
 Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity

9.14 % of the mixture consists of ingredient(s) of unknown toxicity

Other information

Very toxic to aquatic life with long lasting effects

Interactions with Other Chemicals

Use of alcoholic beverages may enhance toxic effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%	Trade Secret
Manganese dioxide	1313-13-9	10 - 30	*
Iron	7439-89-6	10 - 30	*
Zinc	7440-66-6	7 - 13	*
Ammonium chloride	12125-02-9	5 - 10	*
Carbon black	1333-86-4	3 - 7	*
Asphalt	8052-42-4	0.1 - 1	*

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

First aid measures**General Advice**

This is a battery. In case of rupture:.. Show this safety data sheet to the doctor in attendance.

Eye contact

Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin contact

Wash with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician.

Most important symptoms and effects, both acute and delayed**Most Important Symptoms and Effects**

Coughing and/ or wheezing. Difficulty in breathing.

Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Hazardous Combustion Products

Carbon oxides.

Physical/Chemical Reaction Properties	No data available.
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Explosion Data

Sensitivity to Mechanical Impact	No.
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Sensitivity to Static Discharge	No.
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Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with eyes. Ensure adequate ventilation. Avoid generation of dust. Do not breathe dust. Use personal protective equipment as required. Evacuate personnel to safe areas.
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Other Information	Refer to protective measures listed in Sections 7 and 8.
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Environmental precautions

Environmental precautions	Refer to protective measures listed in Sections 7 and 8.
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Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
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Methods for cleaning up	Pick up and transfer to properly labeled containers.
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7. HANDLING AND STORAGE

Precautions for safe handling

Handling

In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Avoid generation of dust. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible Products

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn	(vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn
Zinc 7440-66-6	STEL: 10 mg/m ³ respirable fraction TWA: 2 mg/m ³ respirable fraction	TWA: 5 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction	IDLH: 500 mg/m ³ Ceiling: 15 mg/m ³ dust TWA: 5 mg/m ³ dust and fume STEL: 10 mg/m ³ fume
Ammonium chloride 12125-02-9	STEL: 20 mg/m ³ fume TWA: 10 mg/m ³ fume	(vacated) TWA: 10 mg/m ³ fume (vacated) STEL: 20 mg/m ³ fume	TWA: 10 mg/m ³ fume STEL: 20 mg/m ³ fume
Carbon black 1333-86-4	TWA: 3 mg/m ³ inhalable fraction	TWA: 3.5 mg/m ³ (vacated) TWA: 3.5 mg/m ³	IDLH: 1750 mg/m ³ TWA: 3.5 mg/m ³ TWA: 0.1 mg/m ³ Carbon black in presence of Polycyclic aromatic hydrocarbons PAH
Asphalt 8052-42-4	TWA: 0.5 mg/m ³ benzene soluble aerosol fume, inhalable fraction	-	Ceiling: 5 mg/m ³ fume 15 min

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15 for national exposure control parameters

Appropriate engineering controls

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection

None required for consumer use. If there is a risk of contact: Face protection shield.



Skin and body protection	None required for consumer use. If there is a risk of contact:. Wear protective gloves and protective clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	Solid	Odor	Odorless
Appearance	Blue	Odor Threshold	No information available
Color	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
pH	No data available	None known	
Melting / freezing point	No data available	None known	
Boiling point / boiling range	No data available	None known	
Flash Point	No data available	None known	
Evaporation Rate	No data available	None known	
Flammability (solid, gas)	No data available	None known	
Flammability Limit in Air			
Upper flammability limit	No data available		
Lower flammability limit	No data available		
Vapor pressure	No data available	None known	
Vapor density	No data available	None known	
Specific Gravity	No data available	None known	
Water Solubility	Negligible	None known	
Solubility in other solvents	No data available	None known	
Partition coefficient: n-octanol/water	No data available	None known	
Autoignition temperature	No data available	None known	
Decomposition temperature	No data available	None known	
Kinematic viscosity	No data available	None known	
Dynamic viscosity	No data available	None known	
Explosive properties	No data available		
Oxidizing properties	No data available		

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Excessive heat.

Incompatible materials

None known based on information supplied.

Hazardous Decomposition Products

Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.

Inhalation

Specific test data for the substance or mixture is not available. Harmful by inhalation. (based on components).

Eye contact

Specific test data for the substance or mixture is not available.

Skin contact

Specific test data for the substance or mixture is not available.

Ingestion

Specific test data for the substance or mixture is not available. May be harmful if swallowed. (based on components).

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide 1313-13-9	= 9000 mg/kg (Rat)	-	-
Iron 7439-89-6	= 984 mg/kg (Rat)	-	-
Ammonium chloride 12125-02-9	= 1410 mg/kg (Rat)	-	-
Carbon black 1333-86-4	> 15400 mg/kg (Rat)	> 3 g/kg (Rabbit)	-
Asphalt 8052-42-4	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms

Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure



Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Carbon black 1333-86-4	A3	Group 2B		X
Asphalt 8052-42-4		Group 2B	Reasonably Anticipated	X

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).

Chronic Toxicity Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse effects on the bone marrow and blood-forming system. Carbon black has been classified by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B) by inhalation.

Target Organ Effects Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Blood. Central Nervous System (CNS). Kidney. Lymphatic System. Cardiovascular system. Lungs. Systemic Toxicity.

Aspiration Hazard No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)

1,038.00 mg/kg

ATEmix (inhalation-gas)

15,136.00 ppm (4 hr)

ATEmix (inhalation-dust/mist)

5.00 mg/l

ATEmix (inhalation-vapor)

37.00 ATEmix

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Iron 7439-89-6		96h LC50: = 13.6 mg/L (Morone saxatilis)		
Zinc 7440-66-6	96h EC50: 0.11 - 0.271 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.09 - 0.125 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 2.16 - 3.05 mg/L (Pimephales promelas) 96h LC50: 0.211 - 0.269 mg/L (Pimephales promelas) 96h LC50: = 2.66 mg/L (Pimephales promelas) 96h LC50: = 30 mg/L (Cyprinus carpio) 96h LC50: = 0.45 mg/L (Cyprinus carpio) 96h LC50: = 7.8 mg/L (Cyprinus carpio) 96h LC50: = 3.5 mg/L (Lepomis macrochirus) 96h LC50: = 0.24 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.59 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.41 mg/L (Oncorhynchus mykiss)		48h EC50: 0.139 - 0.908 mg/L
Ammonium chloride 12125-02-9		96h LC50: = 209 mg/L (Cyprinus carpio) 24h LC50: = 725 mg/L (Lepomis macrochirus)		24h LC50: = 202 mg/L
Carbon black 1333-86-4				24h EC50: > 5600 mg/L

Persistence and Degradability

No information available.

Bioaccumulation

Chemical Name	Log Pow
Manganese dioxide 1313-13-9	<0
Asphalt 8052-42-4	6

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

Contaminated Packaging Dispose of contents/containers in accordance with local regulations.

US EPA Waste Number D008

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Asphalt 8052-42-4		Included in waste stream: K022		

California Hazardous Waste Codes 181

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Zinc 7440-66-6	Ignitable powder Toxic

14. TRANSPORT INFORMATION

DOT
Proper Shipping Name NOT REGULATED
Hazard Class NON REGULATED
 N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA
Proper Shipping Name Not regulated
Hazard Class Non regulated
 N/A

IMDG/IMO
Hazard Class Not regulated
 N/A

RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory



DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Manganese dioxide - 1313-13-9	1313-13-9	10 - 30	1.0
Zinc - 7440-66-6	7440-66-6	7 - 13	1.0
Ammonium chloride - 12125-02-9	12125-02-9	5 - 10	1.0
Asphalt - 8052-42-4	8052-42-4	0.1 - 1	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc 7440-66-6		X	X	
Ammonium chloride 12125-02-9	5000 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Zinc 7440-66-6	1000 lb		RQ 454 kg final RQ RQ 1000 lb final RQ
Ammonium chloride 12125-02-9	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Carbon black - 1333-86-4	Carcinogen
Lead - 7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Manganese dioxide 1313-13-9			X	X	X
Zinc 7440-66-6	X	X	X	X	
Ammonium chloride	X	X	X	X	



12125-02-9				
Carbon black 1333-86-4	X	X	X	X
Asphalt 8052-42-4	X	X	X	X

International Regulations

Mexico

National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Manganese dioxide 1313-13-9 (10 - 30)		Mexico: TWA= 0.2 mg/m ³
Ammonium chloride 12125-02-9 (5 - 10)		Mexico: TWA 10 mg/m ³ Mexico: STEL 20 mg/m ³
Carbon black 1333-86-4 (3 - 7)		Mexico: TWA 3.5 mg/m ³ Mexico: STEL 7 mg/m ³
Asphalt 8052-42-4 (0.1 - 1)		Mexico: TWA 5 mg/m ³ Mexico: STEL 10 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

NFPA	Health Hazards 1	Flammability 0	Instability 0	Physical and Chemical Hazards - Personal Protection X
HMIS	Health Hazards 0	Flammability 0	Physical Hazard 0	

Prepared By Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet



Material Safety Data Sheet

1. Identification of the substance/preparation and of the company / undertaking

Product name: Pairdeer R6 Battery
Product Designation: R6
Nominal Voltage: 1.5V
Chemical system: Zinc/ Manganese Dioxide
Designed for recharge: Yes__No√
Company name: Zhongyin Ningbo Battery Co., Ltd.
128 Xingguang Road, Hi-Tech Park
Ningbo
China
Tel: +86 574 87491087 / 87493214
Fax: +86 574 87493903

2. Compositions /Information on Ingredients

Chemical Nature: zinc-manganese dioxide batteries

MATERIALS	CAS#	APPROXIMATE PERCENT OF TOTAL WEIGHT (~%)
Manganese Dioxide (MnO ₂)	1313-13-9	24.2
Zinc (Zn)	7440-66-6	31.8
Ammonium chloride (NH ₄ Cl) and Zinc chloride (ZnCl ₂) mixture solution	/	26.4

IMPURITY	CAS#	APPROXIMATE PERCENT OF TOTAL WEIGHT (~%)
Mercury (Hg)	7439-97-6	<0.0001
Lead (Pb)	7439-92-1	<0.4
Cadmium (Cd)	7440-43-9	<0.002

3. Hazards identifications

General advice: The common known rules for handling of chemicals should be obeyed. Do not eat and drink batteries. Keep batteries away from small children.

Physical-Chemical Hazards: This preparation is not classified as dangerous according to the criteria of directive 99/45/EEC.

Hazards to environment: N.A..

4. First-aid measures

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause server irritation and chemical burns

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately

If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen minutes, and contact a physician.

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

5. Fire-fighting measures

Flash Point (Method Used)	Ignition Temp.	Flammable Limits	LEL	UEL
N.A.	N.A.	N.A.	N.A.	N.A.

Extinguishing Media: N.A
Special Fire Fighting Procedures: N.A.
Unusual Fire and Explosion Hazards
Do not dispose of battery in fire - may explode.
Do not short-circuit battery - may cause burns.

6. Accidental release measures

Steps to Be Taken in Case Material is Released or Spilled
Batteries that are leakage should be handled with rubber gloves.
Avoid direct contact with electrolyte.
Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

7. Handling and storage

Safe handling and storage advice
The battery is extremely sensitive to adverse effects of humidity. Be sure to store them in a place that is dry and subject to little temperature change. Do not place near the boiler or radiator, nor expose to direct sun light. Do not dispose of the battery in fire. Do not charge the battery. Do not short-circuit the battery. Do not put in backward position. Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries. Do not disassemble the battery, handing in such manner can cause the battery to explode, leak and injury.

8. Exposure controls and personal protection

Exposition/Technical measures: Atmospheric vapour concentrations must be minimized by adequate ventilation.
Protection of hands, eyes and skin: None required under normal use conditions.
General safety and hygiene measures: Use only as directed.

9. Physical and chemical properties

Boiling Point N.A.	Specific Gravity (H ₂ O=1) N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point N.A.
Vapor Density (AIR=1) N.A.	Evaporation Rate (Butyl Acetate=1) N.A.
Solubility in Water N.A.	Appearance and Odor Cylinder and odorless

10. Stability and Reactivity

Stability	Unstable		conditions to avoid
	Stable	√	

Incompatibility(Materials to avoid)
Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		conditions to avoid
	Will not occur	√	

11. Toxicological information

Toxicity information is available on the battery ingredients noted in Section 2, but in general, N.A. to intact batteries.

Chronic health effects: N.A.

12. Ecological information

Not available

13. Disposable considerations

Dispose of the batteries according to the government regulations.

14. Transport Information

Batteries are considered to be "Dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG).

Road (ADR/RID): Not regulated

Air (ICAO/IATA):

IATA DGR: Special Provision A123: "Examples of such batteries are: alkali-manganese, zinc-carbon,, nickel-metal hydride and nickel-cadmium batteries. Any electrical battery ... having the potential of a dangerous evolution of heat must be prepared for transport as to prevent (a) a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals...) is forbidden from transport; and (b) accidental activation. The words "Not Restricted" and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued."

Sea (IMDG):

IMDG CODE: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 provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkaline-manganese, zinc-carbon, nickel metal hydride and nickel-cadmium batteries"

Zhongyin Ningbo battery co., ltd hereby certifies that the above captioned goods are non-dangerous and non-hazardous materials for air transport in any nature. The consignment is fully described by Proper Shipping Name and packed (short-circuit prevented), marked and in proper condition for carriage by air. We here certify that the consignment is not classified as dangerous under the current edition of the IATA DANGEROUS GOODS REGULATIONS (edition 54th), with complying with the provision A123 and all applicable carrier and governmental regulations.

Transport Fashion: By air, by sea, by raod, by railway.

15. Regulatory Information

Special requirement be according to the local regulatory.

16. Other information

The information on this Material Safety Date Sheet (MSDS) was obtained form current and reputable sources. However, the data is provided without any warranty; expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to assume liability on loss, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.

SAFETY DATA SHEET

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Revision Number 2



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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name E91BP-4, E91BP-4UP, E91BP-8, E91BP-12, E91BP-20W

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Alkaline battery

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Name Energizer Battery

Supplier Address 533 Maryville University Drive
St. Louis
MO
63141
US

Supplier Phone Number Phone:314-985-2000

Supplier Email travisr.stevener@energizer.com

Emergency telephone number

Company Emergency Phone Number 314-985-1500

2. HAZARDS IDENTIFICATION

Classification


This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.



Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Gases)	Category 2
Acute toxicity - Inhalation (Vapors)	Category 2
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word	Danger
Hazard Statements	
Harmful if swallowed	
Fatal if inhaled	
Causes severe skin burns and eye damage	
May cause an allergic skin reaction	
May cause cancer	
May damage fertility or the unborn child	
May cause respiratory irritation. May cause drowsiness or dizziness	
	
<p>This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist.</p>	
Appearance Silver	Physical state Solid
Odor None	

Precautionary Statements - Prevention

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Wear respiratory protection
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves

Precautionary Statements - Response

- Specific treatment is urgent (see .? on this label)
- Immediately call a POISON CENTER or doctor/physician



Specific treatment (see supplemental first aid instructions on this label)

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Skin

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Call a POISON CENTER or doctor/physician if you feel unwell

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity

6 % of the mixture consists of ingredient(s) of unknown toxicity

Other information

Very toxic to aquatic life with long lasting effects
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons

Interactions with Other Chemicals

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No	Weight-%	Trade Secret
Manganese dioxide	1313-13-9	30 - 60	*
Zinc	7440-66-6	10 - 30	*
Steel manufacture, chemicals	65997-19-5	10 - 30	*
Potassium hydroxide	1310-58-3	5 - 10	*
Graphite	7782-42-5	3 - 7	*

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES



First aid measures**General Advice**

This is a battery. In case of rupture: Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice. May cause an allergic skin reaction.

Inhalation

Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur. Do not breathe dust.

Ingestion

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). Do not breathe dust. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed**Most Important Symptoms and Effects**

Burning sensation. Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. Product is or contains a sensitizer. May cause sensitization by skin contact.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions

Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid generation of dust. Do not breathe dust.

Other Information

Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions

Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection equipment.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible Products Acids. Bases. Oxidizing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn	(vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn
Zinc 7440-66-6	STEL: 10 mg/m ³ respirable fraction TWA: 2 mg/m ³ respirable fraction	TWA: 5 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction	IDLH: 500 mg/m ³ Ceiling: 15 mg/m ³ dust TWA: 5 mg/m ³ dust and fume STEL: 10 mg/m ³ fume
Steel manufacture, chemicals 65997-19-5	STEL: 10 mg/m ³ Zr TWA: 0.05 mg/m ³ Pb TWA: 0.00005 mg/m ³ Be inhalable fraction TWA: 1 mg/m ³ Cu dust and mist TWA: 0.2 mg/m ³ Se TWA: 1 mg/m ³ Y TWA: 5 mg/m ³ Zr TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn TWA: 0.5 mg/m ³ Hf S*	TWA: 50 µg/m ³ Pb TWA: 2 µg/m ³ Be TWA: 0.2 mg/m ³ Se TWA: 5 mg/m ³ Zr Action Level: 30 µg/m ³ Pb Poison, See 29 CFR 1910.1025 (vacated) TWA: 2 µg/m ³ Be (vacated) TWA: 0.2 mg/m ³ Se (vacated) TWA: 5 mg/m ³ Zr (vacated) STEL: 25 µg/m ³ 30 min (vacated) STEL: 10 mg/m ³ Zr (vacated) Ceiling: 5 µg/m ³ (vacated) Ceiling: 5 mg/m ³ Ceiling: 5 µg/m ³ Be Ceiling: 5 mg/m ³ Mn	IDLH: 4 mg/m ³ Be IDLH: 100 mg/m ³ Cu dust and mist IDLH: 500 mg/m ³ Mn IDLH: 1 mg/m ³ Se IDLH: 500 mg/m ³ Y IDLH: 25 mg/m ³ Zr IDLH: 100 mg/m ³ Pb IDLH: 10 mg/m ³ Ni IDLH: 50 mg/m ³ Hf Ceiling: 0.05 mg/m ³ V dust and fume 15 min Ceiling: 0.0005 mg/m ³ Be TWA: 1 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Mn TWA: 0.2 mg/m ³ except Selenium hexafluoride Se TWA: 1 mg/m ³ Y TWA: 5 mg/m ³ except Zirconium tetrachloride Zr TWA: 0.050 mg/m ³ Pb TWA: 0.015 mg/m ³ except Nickel carbonyl Ni TWA: 0.5 mg/m ³ Hf STEL: 3 mg/m ³ Mn STEL: 10 mg/m ³ Zr
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m ³	(vacated) Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³
Graphite 7782-42-5	TWA: 2 mg/m ³ respirable fraction all forms except graphite fibers	TWA: 15 mg/m ³ total dust synthetic TWA: 5 mg/m ³ respirable fraction synthetic	IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ respirable dust

		(vacated) TWA: 2.5 mg/m ³ respirable dust natural (vacated) TWA: 10 mg/m ³ total dust synthetic (vacated) TWA: 5 mg/m ³ respirable fraction synthetic TWA: 15 mppcf natural	
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ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.

Skin and body protection Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use. Do not breathe dust.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	Solid	Odor	None
Appearance	Silver	Odor Threshold	No information available
Color	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
pH	No data available	None known	
Melting / freezing point	No data available	None known	
Boiling point / boiling range	No data available	None known	
Flash Point	No data available	None known	
Evaporation Rate	No data available	None known	
Flammability (solid, gas)	No data available	None known	
Flammability Limit in Air			
Upper flammability limit	No data available		



Lower flammability limit	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	Insoluble in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No data available	
Oxidizing properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Exposure to air or moisture over prolonged periods. Excessive heat.

Incompatible materials

Acids. Bases. Oxidizing agent.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.

Inhalation

Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract. Fatal if inhaled.

Eye contact	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.
Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide 1313-13-9	= 9000 mg/kg (Rat)	-	-
Potassium hydroxide 1310-58-3	= 284 mg/kg (Rat)	-	-

Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization in susceptible persons. May cause sensitization by skin contact.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Steel manufacture, chemicals 65997-19-5	A1 A3	Group 1 Group 2A Group 2B Group 3	Known Reasonably Anticipated	X

Reproductive toxicity Contains a known or suspected reproductive toxin.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).

Chronic Toxicity Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Effects from this product caused by acute exposure may cause permanent damage to target organs and/or may

cause chronic conditions. Contains a known or suspected carcinogen. Contains a known or suspected reproductive toxin. Possible risk of irreversible effects. Avoid repeated exposure. Prolonged exposure may cause chronic effects.

Target Organ Effects

Eyes. Respiratory system. Skin. Gastrointestinal tract (GI). Systemic Toxicity. Reproductive System.

Aspiration Hazard

No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)

307.00 mg/kg

ATEmix (inhalation-gas)

435.00 ppm (4 hr)

ATEmix (inhalation-dust/mist)

0.21 mg/l

ATEmix (inhalation-vapor)

2.00 ATEmix

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life. Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Zinc 7440-66-6	96h EC50: 0.11 - 0.271 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.09 - 0.125 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 3.5 mg/L (Lepomis macrochirus) 96h LC50: = 7.8 mg/L (Cyprinus carpio) 96h LC50: = 0.24 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.59 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.41 mg/L (Oncorhynchus mykiss) 96h LC50: 0.211 - 0.269 mg/L (Pimephales promelas) 96h LC50: = 2.66 mg/L (Pimephales promelas) 96h LC50: = 30 mg/L (Cyprinus carpio) 96h LC50: = 0.45 mg/L (Cyprinus carpio) 96h LC50: 2.16 - 3.05 mg/L (Pimephales promelas)		48h EC50: 0.139 - 0.908 mg/L
Potassium hydroxide 1310-58-3		96h LC50: = 80 mg/L (Gambusia affinis)		

Persistence and Degradability

No information available.

Bioaccumulation

No information available

Chemical name	Log Pow
Manganese dioxide 1313-13-9	<0
Potassium hydroxide 1310-58-3	0.83

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging

Do not reuse empty containers.

California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Zinc 7440-66-6	Ignitable powder Toxic
Steel manufacture, chemicals 65997-19-5	Toxic
Potassium hydroxide 1310-58-3	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT
 Proper Shipping Name NOT REGULATED
 Hazard Class NON REGULATED
 N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA
 Proper Shipping Name Not regulated
 Hazard Class NON REGULATED
 N/A

IMDG/IMO
 Hazard Class Not regulated
 N/A

RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories



TSCA Complies
 DSL All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	CAS No	Weight-%	SARA 313 - Threshold Values %
Manganese dioxide - 1313-13-9	1313-13-9	30 - 60	1.0
Zinc - 7440-66-6	7440-66-6	10 - 30	1.0
Steel manufacture, chemicals - 65997-19-5	65997-19-5	10 - 30	1.0
			0.1

SARA 311/312 Hazard Categories

Acute Health Hazard No
 Chronic Health Hazard No
 Fire Hazard No
 Sudden release of pressure hazard No
 Reactive Hazard No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc 7440-66-6		X	X	
Steel manufacture, chemicals 65997-19-5		X		
Potassium hydroxide 1310-58-3	1000 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Zinc 7440-66-6	1000 lb		RQ 454 kg final RQ RQ 1000 lb final RQ
Potassium hydroxide 1310-58-3	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois



Zinc 7440-66-6	X	X	X	X	
Potassium hydroxide 1310-58-3	X	X	X	X	
Manganese dioxide 1313-13-9			X	X	X
Graphite 7782-42-5	X	X	X		

International Regulations

Chemical name	Carcinogen Status	Exposure Limits
Manganese dioxide		Mexico: TWA= 0.2 mg/m ³
Steel manufacture, chemicals	A3 A2	Mexico: TWA 0.15 mg/m ³ Mexico: TWA 0.002 mg/m ³ Mexico: TWA 0.2 mg/m ³ Mexico: TWA 5 mg/m ³ Mexico: STEL 10 mg/m ³
Graphite		Mexico: TWA= 2 mg/m ³

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

NFPA	Health Hazards 1	Flammability 0	Instability 0	Physical and Chemical Hazards -
HMIS	Health Hazards 0	Flammability 0	Physical Hazard 0	Personal Protection X

Prepared By Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date 15-Jun-2015
Revision Date 13-Apr-2016
Revision Note No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet



Material Safety Data Sheet

For

SHENZHEN DISHY HIGH TECHNOLOGY CO., LTD.
Komeito Industry Zone, Gongming Town, Shenzhen City, China
and for their product

Alkaline Battery

Model/type reference: AAA, AA, C, D, LR1, 6F22, 6LR61, LR621, LR726, LR626, LR754,
LR927, LR1120, LR1120, LR936, LR1130, LR721, LR43, LR44,
LR41, 23A, 27A

Trademark: N/A

Nominal Voltage.....: 1.5V

Typical Capacity.....: ---

Weight.....: 6.0g

Shape and Physical Dimension L: 44.3mm
(mm).....: D: 10.2mm

Version number.....: V1.0

Preparation Date.....: October. 17, 2013

Revision date.....: N/A.

Laboratory: **Shenzhen SEM.Test Technology Co., Ltd.**

Address: 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd
Road, Bao'an District, Shenzhen, P.R.C. (518101)

Compiled by (name+ signature) ..: Horse Kang

Horse Kang

Approved by (name+ signature) ..: Ailis Ma

Ailis Ma

Section 1- Chemical Product and Company Identification

1. Chemical Product Identification

Product name: Alkaline Battery

Model: AAA, AA, C, D, LR1, 6F22, 6LR61, LR621, LR726, LR626, LR754, LR927, LR1120, LR1120, LR936, LR1130, LR721, LR43, LR44, LR41, 23A, 27A

2. Company Identification

Manufacturer /Supplier Name: SHENZHEN DISHY HIGH TECHNOLOGY CO., LTD.

Address: Komeito Industry Zone, Gongming Town, Shenzhen City, China

Telephone number of the supplier:+86-0769-22807078

Emergency Telephone No.(24h): +86-0769-22807078

Fax: +86-0769-22807079

e-mail address: rose@dishy-battery.com

This MSDS was prepared by Shenzhen SEM.Test Technology Co., Ltd.

Item Number: STR14109087S

Referenced documents: ISO 11014:2009 Safety data sheet for chemical products;

Section 2 – Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred Alkaline Battery the ingredients contained within or their ingredients products could be harmful.
Appearance, Color, and Odor	Solid object with no odor, no color.
Primary Route(s) of Exposure	These chemicals are contained in a sealed stainless steel enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact
Potential Health Effects:	<p>ACUTE (short term): see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.</p> <p>Inhalation: Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.</p> <p>Ingestion: Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.</p> <p>Skin: Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.</p> <p>Eye: Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.</p> <p>CHRONIC (long term): see Section 11 for additional toxicological data</p>
Medical	Not applicable

Conditions Aggravated by Exposure	
Reported as carcinogen	Not applicable

Section 3 – Composition/Information on Ingredients

Alkaline Battery is a mixture.

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Manganese Dioxide	40	1313-13-9
Zinc Metal	16	7440-66-6
Potassium hydroxide	8	1310-58-3
Water	10	7732-18-5
Iron	17	7439-89-6
Copper	3	7440-50-8
Nylon	3	9008-75-7
Graphite	3	7782-42-5

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

Section 4 – First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if

	victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.
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Section 5 – Fire-fighting Measures

Flammable Properties	In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	Sensitivity to Mechanical Impact: This may result in rupture in extreme cases Sensitivity to Static Discharge: Not Applicable
Specific Hazards arising from the chemical	Fires involving Alkaline Battery an be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire
Protective Equipment and precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.
NFPA	Health: 0 Flammability: 0 Instability: 0

Section 6 – Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills

	immediately.
Methods and materials for cleaning up	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Section 7 – Handling and Storage

Handling	<p>Do not dismantle, open or shred secondary Alkaline Battery;</p> <p>Don't handling Alkaline Battery with metalwork. Do not open, disassemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.</p> <p>Prevent formation of dust.</p> <p>Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.</p>
Storage	<p>If the Alkaline Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Alkaline Battery periodically.</p> <p>3 months: -10°C~+40°C, 45 to 85%RH</p> <p>And recommended at 0°C~+35°C for long period storage.</p> <p>The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.</p> <p>The voltage for a long time storage shall be 1.5V~2.5V range.</p> <p>Do not storage Alkaline Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.</p> <p>Keep out of reach of children.</p> <p>Do not expose Alkaline Battery to heat or fire. Avoid storage in direct sunlight.</p> <p>Do not store together with oxidizing and acidic materials.</p>

Section 8 – Exposure Controls and Personal Protection

Engineering Controls	Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor. Keep away from heat and open flame. Store in a cool, dry place.
Personal Protective Equipment	Respiratory Protection: Not necessary under normal conditions. Skin and body Protection: Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery. Hand protection: Wear neoprene or natural rubber material gloves if handling an open or leaking battery. Eye Protection: Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.
Other Protective Equipment	Have a safety shower and eye wash fountain readily available in the immediate work area.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

Section 9 - Physical and Chemical Properties

Physical State	Form: Solid
	Color: Yellow
	Odour: Monotony
Change in condition:	
pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable

Density/relative density	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject Alkaline Battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

Section 11 - Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

Section 12 - Ecological Information

General note:	Water hazard class 1(Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impace/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

Section 13 – Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling;

Section 14 – Transport Information

This report applies to by sea, by air and by land;

Alkaline Battery complies with SP A123 the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Alkaline Battery.

The Alkaline Battery according to SP 123 of the 2013 IATA Dangerous Goods regulations 54th Edition may be transported. and applicable U.S. DOT regulations for the safe transport of Alkaline Battery.

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of

unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

The Dry the battery having the

potential of a dangerous evolution of heat must be prepared for transport so as to prevent:

- (a) 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); and
- (b) accidental activation.

The words "Not Restricted" and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

The package must be handled with care and that a flammability hazard exists if the package is damaged;

Section 15 - Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

_____ Hazardous

_____ Non-hazardous

Section 16 - Other Information

The information above is believed to be accurate and represents the best information currently available to us. however, concorde makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. users should make their own investigations to determine the suitability of the information for their particular purposes. although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. this material safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

*****The End*****