

MATERIAL SAFETY DATA SHEET

According to the European directive 2001/58/EC

Date: 12/13/2004

Product: Zhongyin Dry batteries

Rev:1

1. Chemical Product

Name: Cylindrical Alkaline Cells LR20, LRI4, LR6, LR03, LR1, LRI2, LR8D425

and batteries comprised of these cells (e.g., 6LR6l, 4LR6l, 3LR12) and

Carbon Zinc Heavy duty Cells-R20,3LR12,R14,R6

Manufacturer: Zhongyin (Ningbo) Battery Co., Ltd.

Address: No.99 Dahetou St., Duantang, Ningbo 315011, China

Telephone: +86-574-8749-1087:

2. Composition /Information on Ingredients:

Chemical Nature: Alkaline zinc-manganese dioxide batteries

CAS-No/EINECS NO.: Not applicable

INCI CTFA-Description:

Tariff No.: 8506.1000

Dangerous ingredients which have to be mentioned acc. to 99/45/EEC and its adaptations

Chemical Name	HAZARDOUS %	<u>TLV (UNITS)</u>	RISK PHRASES	CAS No.
Manganese dioxide	35-40	Not present	R20/22	1313-13-9
Zinc	10-25	10 mg/m3	R15/17	7440-66-6
Potassium hydroxide (38%)	5-10	2 mg/m3	R22/35	1310-58-3

3. Hazards identifications

General advice: The common known rules for handling of chemicals should be obeyed. These chemicals are contained in a sealed steel can. For consumer use, adequate hazard warnings are printed on both the package and the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, or electrically abused. Concentrated potassium hydroxide contained is caustic. Anticipated potential leakage of potassium hydroxide is 2-20 mL, depending on battery size. 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 man: If battery leaking, exposure to caustic ingredients may occur. Therefore, may cause sensitization by skin contact.

Hazards to environment: Not applicable

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4. First-aid measures:

Inhalation: In case of excessive inhalation due to leaking batteries remove to fresh air. Obtain medical advice.

Skin Contact: If exposed to a leaking battery, remove contaminated clothing. Wash exposed areas with plenty of water and soap. If irritation occurs, consult a physician.

Eye contact: If a battery is leaking and materials contact eyes, flush immediately with running water for at least 15 minutes. Consult an ophthalmologist at once.

Ingestion: Not anticipated due to size of batteries. Choking may occur with the smaller size batteries. If exposed to a leaking battery, rinse mouth and surrounding areas with running water for at least 15 minutes. Give plenty of water to drink. Do not induce vomiting. Obtain medical advice.

5. Fire-fighting measures

Suitable extinguishing media: Carbon dioxide (CO₂), foam, dry chemical powder.

Extinguishing media not to be used: Never use a direct water jet.

Exposure hazards ITom combustion products: In case of fire, carbon dioxide, carbon monoxide and other toxic organic substances will be generated. Do not inhale fumes and smoke.

Personal protective equipments: Wear full protective clothing. Use self-contained breathing apparatus.

6. Accidental release measures

Personal precautions: NotifY safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase the ventilation. Wear protective clothing. Keep unprotected persons away.

Environmental precautions: Avoid discharge and penetration into sewerage systems, waterways, pits, and cellars.

Methods for cleaning up: Collect spilled material with an insert standard absorbent like sand or silica. Care for well-ventilated conditions. Recycle or dispose of the materials in an appropriate way.

7. Handling and storage

General handling: Obey the common known rules and precautions for handling with chemicals. Avoid mechanical and electrical abuse. Do not short battery or install incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries according to equipment instructions. Do not mix battery systems, such as alkaline and zinc-carbon. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag. Do not remove battery labels.

Storage: Store product in well-filled, appropriate coated and tightly closed containers avoiding influence of oxygen/air, light and humidity. Store at room temperature.

8. Exposure controls and personal protection

Exposition/Technical measures: Atmospheric vapour concentrations must be minimized by adequate ventilation.

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Protection of hands, eyes and skin: None required under normal use conditions. When handling leaking batteries, use neoprene, rubber or nitrile gloves and wear safety glasses to protect hands, eyes and skin.

General safety and hygiene measures: Use only as directed.

9. Physical and chemical properties

Physical state: Stainless steel top battery

Colour: Contents dark and gray in colour

Odour: Not applicable

Melting Point: Not applicable

Boiling Point: Not applicable

Flash point: Not applicable

Explosion limit: Not available

Ignition temperature: Not available

Vapour pressure: Not available

Specific gravity: Not applicable

Solubility in water: Not applicable

Solubility in other solvents: Not applicable

pH value: Not available

Partition coefficient: Not available

Viscosity: Not available

10. Stability and Reactivity

Thermal decomposition: Batteries may burst and release hazardous decomposition products when exposed to fire.

Substances to avoid: Strong oxidation agents.

Hazardous reactions: Contents incompatible with strong oxidising agents.

Hazardous decomposition products: Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapours of potassium hydroxide and other toxic by-products.

11. Toxicological information

Toxicity information is available on the battery ingredients noted in Section 2, but in general, not applicable to intact batteries.

Chronic health effects: Not applicable to intact batteries.

12. Ecological information

Not available

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13. Disposal considerations

Product: Dispose in accordance with appropriate regulations. If in doubt, contact your local government office concerned for information. Do not incinerate, since batteries may explode at excessive temperatures.

14. Transport Information

Road (ADR/RID): Not regulated

Air (ICAO/IATA): Not regulated

Sea (IMDG): Not regulated

These batteries are not regulated by international agencies as hazardous materials or dangerous goods when shipped. A shipping name of "Alkaline Batteries - Non-hazardous" may be used on all domestic and international bills of lading.

15. Regulatory Information

Symbol: N/A

EC labeling: None

Risk phrases: None

Safety phrases: None

Labeling is not required because alkaline batteries are classified as "articles" under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

16. Other information

The information on this Material Safety Data Sheet (MSDS) was obtained from 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.