

# 3-CIRCLES Batteries

## Material Safety Data Sheet

Document Number: MSDS-002

Revision: 1.0

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### Section I Identification

**Product name:** Carbon-zinc Batteries

**Sizes:** R20, R14, R6, R03, 6F22, 4R25, 4R25-2

**Manufacturer's Name:** Xiamen 3-Circles Battery Co., Ltd.

**Address:** No 519, Jimei North Road, Xiamen, Fujian, PRC.

**Telephone Number for information:** 86-592-6388999

**Emergency Telephone Number:** 86-592-6388999

**Edition date:** FEB 10th, 2014

### Section II Ingredients

Ingredient name	CAS#	%
Hg	7439-97-6	< 0.0001%
Cd	7440-43-9	< 0.025%
Pb	7439-92-1	< 0.4%
Manganese Dioxide	1313-13-9	21 ~ 27%
Carbon	7782-42-5	15 ~ 17%
Iron	7439-89-6	4 ~ 21%
Zinc	7440-66-6	18 ~ 33%
Zinc chloride	7646-85-7	6 ~ 7%
Water, paper, plastic, other	—	Balance

### Section III Physical / Chemical Characteristics

Boiling Point (°C)	N.A.
Melting Point (°C)	N.A.
Vapor Pressure (mmHg)	N.A.
Vapor Density (Air=1)	N.A.
Density (grams/cc)	N.A.
Solubility in Water (% by Weight)	N.A.
pH	N.A.
Appearance and Odor	Geometric solid object, odorless

### Section IV Fire and Explosion Hazard Data

Flash Point	N.A.
Ignition Temp	N.A.
LEL	N.A.
UEL	N.A.
Extinguishing Media	Water, foam or dry powder.
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.

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### Section V Reactivity Data

Stable or Unstable	Stable
Incompatibility (Materials to Avoid)	N.A.
Hazardous Decomposition Products	N.A.
Hazardous Polymerization	Will not occur.
Conditions to Avoid	Avoid short-circuit.

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### Section VI Health Hazard Data

Health hazard (acute and chronic)/ Toxicological information:

- In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.
- In contact with electrolyte can cause severe irritation and chemical burns.
- Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

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### Section VII Ecological Information

N.A.

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### Section VIII First Aid Measures

First aid procedures:

- 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 (15) 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.

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### Section IX Measures for fire extinction

- In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.
- Fire fighters should wear self-contained breathing apparatus.

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### Section X Accidental Release or Spillage

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).

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### Section XI Handling and Storage

Safe handling and storage advice:

- Batteries should be handled and stored carefully to avoid short circuits.
- Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.
- Never disassemble a battery.
- Do not breathe cell vapors or touch internal material with bare hands.
- Keep batteries between -30°C and 35°C for prolong storage.

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### Section XII Exposure Controls / Person Protection

Occupational Exposure Limits	N.A.
Respiratory Protection (Specify Type)	N.A.
Ventilation	N.A.
Protective Gloves	N.A.
Other Protective Clothing or Equipment	N.A.
Work / Hygienic Practices	N.A.

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### Section XIII Disposal Method

Dispose of batteries according to government regulations.

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### Section XIV Transportation Information

3-circles 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). 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). As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

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### Section XV Regulatory Information

Special requirement be according to the local regulations.

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### Section XVI Other Information

- The data in this Material Safety Data Sheet relates only to the specific material designated herein.
- Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.