

SAFETY DATA SHEET

Revision Number 1

Issuing Date No data available

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

Product identifier

Product Name alkaline zinc-manganese battery LR6

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 SHANGHAI XINLI BATTERY CO.,LTD.

Supplier Address NO433 HAMI ROAD, SHANGHAI CITY
200335
CN

Supplier Phone Number Phone: +86 021-63731119
Contact Phone: +86 021-63731119

Supplier Email xinliba@shanghaibattery.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.

| | |
|--|---------------------------|
| Serious eye damage/eye irritation | Category 1 |
| Skin corrosion/irritation | Category 1 Sub-category B |
| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Inhalation (Gases) | Category 4 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 |
| Specific target organ toxicity (repeated exposure) | Category 2 |

GHS Label elements, including precautionary statements**Emergency Overview****Danger****Signal word**

Harmful if swallowed

Harmful if inhaled

Causes severe skin burns and eye damage

May cause damage to organs through prolonged or repeated exposure

**Appearance** Yellow**Physical State** Solid containing Liquid**Odor** Odorless**Precautionary Statements - Prevention**

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

Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

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

Inhalation

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

Call a POISON CENTER or doctor/physician if you feel unwell

Immediately call a POISON CENTER or doctor/physician

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity**Other information**

Very toxic to aquatic life with long lasting effects

Interactions with Other Chemicals

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No | Weight-% |
|---------------------|------------|----------|
| Copper | 7440-50-8 | 3.3 |
| Potassium hydroxide | 1310-58-3 | 6 |
| Manganese dioxide | 1313-13-9 | 44.5 |
| Zinc | 7440-66-6 | 18.1 |
| Carbon | 7440-44-0 | 1.3 |
| Nylon-66 | 32131-17-2 | 2.1 |
| Iron | 7439-89-6 | 24.7 |

4. FIRST AID MEASURES**First aid measures****General Advice**

First aid is upon rupture of sealed battery.

General Advice

First aid is upon rupture of sealed battery.

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.

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.

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. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

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

Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

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.

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.

| | |
|--------------------------|---|
| Uniform Fire Code | Corrosive: Other--Solid Toxic: Solid Oxidizer: Class 1--Solid |
|--------------------------|---|

Hazardous Combustion Products

Carbon Oxides

Explosion Data

Sensitivity to Mechanical Impact **No.**

Sensitivity to Static Discharge **No.**

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 breathing vapors or mists. Avoid generation of dust. Do not breathe dust |
|-----------------------------|--|

| | |
|--------------------------|--|
| Other Information | Refer to protective measures listed in Sections 7 and 8. |
|--------------------------|--|

Environmental Precautions

| | |
|----------------------------------|--|
| Environmental Precautions | Refer to protective measures listed in Sections 7 and 8. |
|----------------------------------|--|

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. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. 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. 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 |
|----------------------------------|---|--|--|
| Potassium hydroxide 1310-58-3 | TWA: 2 mg/m ³ | (vacated) Ceiling: 2 mg/m ³ | Ceiling: 2 mg/m ³ |
| 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 |
| Copper 7440-50-8 | TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist | TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist | IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume |

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health

Administration - Permissible Exposure Limits NIOSH IDLH 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 No special protective equipment required.

Skin and Body Protection No special protective equipment required.

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 eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face

protection. 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 Containing Liquid | | |
| Appearance | yellow | Odor | Odorless |
| Color | No information available | Odor Threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks/</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 | No data available | None known |
| Solubility in other solvents | No data available | None known |
| Partition coefficient: n-octanol/water | 0.0001 | 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 | 0.0001 | None known |
| Explosive properties | No data available | None known |
| Oxidizing Properties | No data available | None known |

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

Acids. Bases. Oxidizing agent.

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. 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. Harmful by inhalation. |
| 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. May be harmful if swallowed. |

Component Information

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|----------------------------------|---------------------|-------------|-----------------|
| Potassium hydroxide 1310-58-3 | = 214 mg/kg (Rat) | - | - |
| Manganese dioxide 1313-13-9 | = 9000 mg/kg (Rat) | - | - |
| Iron 7439-89-6 | = 984 mg/kg (Rat) | - | - |

Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. 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.

IARC (International Agency for Research on Cancer)

Group 3 - Not Classifiable as to Carcinogenicity in Humans

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 | No known effect based on information supplied. 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. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects. Carcinogenic potential is unknown. |
| Target Organ Effects | Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Blood. Central Nervous System (CNS). Kidney. Cardiovascular system. Lungs. |
| Aspiration Hazard | No information available. |

Numerical measures of toxicity Product Information

No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

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) | | |
| Copper 7440-50-8 | 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) | | 48h EC50: = 0.03 mg/L |
| 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 |
| Potassium hydroxide 1310-58-3 | | 96h LC50: = 80 mg/L (Gambusia affinis) | | |

Persistence and Degradability

No information available.

Bioaccumulation

| | |
|----------------------------------|------|
| 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 Should not be released into the environment.

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

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 |
| Potassium hydroxide 1310-58-3 | Toxic Corrosive |
| Copper 7440-50-8 | Toxic |

14. TRANSPORT INFORMATION

DOT NOT REGULATED

Proper Shipping Name NON REGULATED
 Hazard Class N/A

TDG Not regulated

MEX Not regulated

CAO Not regulated

IATA Not regulated

Proper Shipping Name Not regulated

Hazard Class N/A

IMDG/IMO Not regulated

Hazard Class 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 | 44.5 | 1.0 |
| Zinc | 7440-66-6 | 18.1 | 1.0 |
| Copper - 7440-50-8 | 7440-50-8 | 3.3 | 1.0 |

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 | | X | X | |
| Potassium hydroxide | 1000 lb | | | X |
| Copper 7440-50-8 | | X | 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 |
| Copper 7440-50-8 | 5000 lb | | RQ 5000 lb final RQ RQ 2270 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

| 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 |
| Potassium hydroxide 1310-58-3 | X | X | X | | X |
| Copper 7440-50-8 | X | X | X | X | X |
| Carbon 7440-44-0 | | | X | | |

International Regulations**Mexico****National occupational exposure limits**

| Component | Carcinogen Status | Exposure Limits |
|-----------------------------|-------------------|---|
| Manganese dioxide 1313-13-9 | | Mexico: TWA= 0.2 mg/m ³ |
| Copper 7440-50-8 | | Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³ |

Mexico - Occupational Exposure Limits - Carcinogens

Canada**WHMIS Hazard Class**

Non-controlled

16. OTHER INFORMATION

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

| | |
|----------------------|---------------------------------|
| Prepared By | SHANGHAI XINLI BATTERY CO.,LTD. |
| Revision Date | 16-July-2015 |
| Revision Note | |

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