

**PONY**

Pony Testing International Group

Report No.: W02203007916D~1

# MSDS Report

Samples **AAA SIZE CARBON-ZINC DRY BATTERY  
(R03P 1.5V)**

Client Unit **DONGGUAN CITY LIWANG BATTERY CO., LTD.**

Client Address **Shima Village, Tangxia Town, Dongguan City,  
Guangdong Province, China.**

No.: W02203007916D  
Code: haamy8s

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## Material Safety Data Sheet

### Section 1 - Chemical Product and Company Identification

**Product Name:** AAA SIZE CARBON-ZINC DRY BATTERY

**Battery Type:** R03P 1.5V

**Manufacture:** DONGGUAN CITY LIWANG BATTERY CO., LTD.

**Address:** Shima Village, Tangxia Town, Dongguan City, Guangdong Province, China.

**Post Code:** 523731

**Tel:** +86-0769-86201111

**Emergency Telephone:** +86-0769-86201111

**Fax:** +86-0769-87887512

**E-mail:** rd1@liwangbattery.com

### Section 2 - Composition/Information on Ingredient

Chemical Name	Chemical Formula	CAS No.	In % by Weight
Manganese Dioxide	MnO <sub>2</sub>	1313-13-9	37
Zinc	Zn	7440-66-6	33
Ammonium Chloride	NH <sub>4</sub> Cl	12125-02-9	0.6
Zinc Chloride	ZnCl <sub>2</sub>	7646-85-7	3.2
Carbon Black	C	1333-86-4	10
Iron	Fe	7439-89-6	2
Water	H <sub>2</sub> O	7732-18-5	14.2

### Section 3 - Hazards Identification

**No specific health hazards for normal use.**

#### Routes of Entry

Eyes, Skin, Inhalation, Ingestion.

#### Health Hazards

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a

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battery vents. Leaking material exposure to skin, eyes may cause irritation. Inhalation of fumes may cause respiratory irritation.

#### Sign/Symptoms of Exposure

Leaking can cause thermal and chemical burns upon contact with the skin.

### Section 4 - First Aid Measures

#### Eye

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

#### Skin

Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

#### Inhalation

Remove from exposure and move to fresh air immediately. Use oxygen if available.

#### Ingestion

Do not induce vomiting. Call a physician immediately.

### Section 5 - Fire Fighting Measures

**Flash Point:** N/A.

**Auto-Ignition Temperature:** N/A.

#### Extinguishing Media

Water, CO<sub>2</sub>, dry chemical.

#### Firefighting

In case of fire in an adjacent area, use water, CO<sub>2</sub> or dry chemical extinguishers if batteries in their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpackaged batteries use suitable extinguishers. In this case, do not use water.

### Section 6 - Accidental Release Measures

#### Steps to be Taken in case Material is Released or Spilled

If the battery is accidentally broken and electrolyte leaks out, wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can.

The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

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Remove spilled liquid with absorbent and incinerate.

#### Waste Disposal Method

It is recommended to discharge the battery to the end, handing in the abandoned battery to related department unify, dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

### Section 7 - Handling and Storage

The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

#### Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

#### Other Precautions

Do not short or install with incorrect polarity.

### Section 8 - Exposure Controls, Personal Protection

#### Respiratory Protection

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

#### Other Protective Clothing or Equipment

Not necessary under conditions of normal use. Personal Protection is recommended for venting batteries: Respiratory Protection, Protective Gloves, Protective Clothing and Safety Glass with side shields.

### Section 9 - Physical and Chemical Properties

**Nominal Voltage:** 1.5V

**Appearance Characters:** Blue and yellow with odorless columned solid.

**Chemical uses:** One-time power for electrical appliances.

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## Section 10 - Stability and Reactivity

### Stability

Stable

### Conditions to Avoid

Elevated temperatures fire and ignition sources, mechanical abuse and electrical abuse.

### Hazardous Decomposition Products

N/A.

## Section 11 - Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be irritation to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

### Manganese Dioxide

Acute oral toxicity LD50 (Rat): &gt;3478 mg/kg

### Zinc

Skin: 300ug/3 Days. Reaction: Mild.

## Section 12 - Ecological Information

When promptly used or disposed the battery does not present severe environmental hazard. When disposed, keep away from water, rain and snow.

## Section 13 - Disposal Considerations

### Appropriate Method of Disposal of Substance or Preparation

Dispose of the battery in accordance with approved local, state, and federal requirements.

Consult state environmental agency and/or federal EPA.

## Section 14 - Transport Information

**AAA SIZE CARBON-ZINC DRY BATTERY (R03P 1.5V) is exempt from dangerous goods.** It is considered non-dangerous goods by the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) DGR 53<sup>rd</sup>, the

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International Maritime Dangerous Goods regulations (IMDG) and 《Recommendations on the Transport of Dangerous Goods Model Regulations》.

Separate batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully.

**Transport Fashion:** By air, by sea, by railway, by road.

## Section 15 - Regulatory Information

### Law Information

- 《Dangerous Goods Regulation》
- 《Recommendations on the Transport of Dangerous Goods Model Regulations》
- 《International Maritime Dangerous Goods》
- 《Technical Instructions for the Safe Transport of Dangerous Goods》
- 《Classification and code of dangerous goods》
- 《Occupational Safety and Health Act》 (OSHA)
- 《Toxic Substances Control Act》 (TSCA)
- 《Consumer Product Safety Act》 (CPSA)
- 《Federal Environmental Pollution Control Act》 (FEPCA)
- 《The Oil Pollution Act》 (OPA)
- 《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》 (SARA)
- 《Resource Conservation and Recovery Act》 (RCRA)
- 《Safety Drinking Water Act》 (CWA)
- 《California Proposition 65》
- 《Code of Federal Regulations》 (CFR)

In accordance with all Federal, State and Local laws.

## Section 16 - Additional Information

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon

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condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Prepared by: *Huxiaojan*

Checked by:

*Wangzhimin*

Approved by:

*Hijou*

MSDS Creation Date: February 22, 2012



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# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN  
Product name: ALKALINE BATTERY

Revision date: 19/03/2015  
Printing date: 19/03/2015

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## 1. Identification

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### *(a) Product identifier*

Product name: ALKALINE BATTERY

### *(b) Other means of identification*

Product description: Model: LR03  
Nominal Voltage: 1.5V  
Weight: 11.3g  
Dimension: 10.5mm×44.5mm (D×H)

### *(c) Recommended use of the chemical and restrictions on use*

Recommended use: Battery.  
Restriction on use: No information available.

### *(d) Details of the supplier of the product*

Company name(China) Guangdong Liwang New Energy Co., Ltd  
Address: Liwang Industrial Estate, Shima Village, Tangxia Town, Dongguan City, Guangdong Province, CHINA  
E-mail: Liwang@Liwangbattery.com  
Telephone: +86-769-87888653

### *(e) Emergency phone number*

+86-769-87888653

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## 2. Hazard(s) identification

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### *(a) Classification of the chemical*

The batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. A sealed ALKALINE BATTERY is not hazardous in normal use.

### *(b) Label elements*

Pictogram(s): No pictogram.  
Signal word: No signal word.  
Hazard statements: No hazard statement.  
Precautionary statements: No precautionary statement.

### *(c) Description of any hazards not otherwise classified*

In case of mistreatment (abusive over charge, reverse charge, external short circuit...) and in case of fault some electrolyte can leak from the cell through the safety device. In these cases refer to the risk of the electrolyte. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. The electrode materials are only hazardous, if the materials are released by mechanical damaging of the cell or if exposed to fire.

Skin touch: Contact with battery electrolyte may cause burns and skin irritation.

Eyes touch: Contact with battery electrolyte may cause burns. Eye damage is possible.

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.



# Safety Data Sheet

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Version: 1.0/EN  
Product name: ALKALINE BATTERY

Revision date: 19/03/2015  
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## **(d) Ingredient with unknown acute toxicity**

No information available.

## 3. Composition/information on ingredients

### **(a) Mixtures information**

Chemical name	CAS No.	Concentration%
Manganese dioxide	1313-13-9	40
Zinc	7440-66-6	16
Potassium hydroxide	1310-58-3	8
Water	7732-18-5	10
Iron	7439-89-6	17
Paper	RR-01108-5	1
Copper	7440-50-8	3
Nylon-6	25038-54-4	2
Graphite	7782-42-5	3

## 4. First-aid measures

### **(a) Description of first aid measures**

- Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice / attention if you feel unwell.
- Skin contact: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing. Get medical advice / attention if you feel unwell.
- Ingestion: Have victim drink 60 to 240 mL (2-8 oz.) of water. and DO NOT induce vomiting. Get medical aid.

### **(b) Most important symptoms/effects, acute and delayed**

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system. Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

### **(c) Immediate medical attention and special treatment**

No information available.

## 5. Fire-fighting measures

### **(a) Extinguishing media**

- Suitable extinguishing media: Use foam, dry powder or dry sand, CO<sub>2</sub> as appropriate.
- Unsuitable extinguishing media: No information available.

### **(b) Special hazards arising from the chemical**

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO,

# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN  
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CO<sub>2</sub>, Metal oxides, Irritating fumes

***(c) Special protective equipment and precautions for fire-fighters***

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

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## 6. Accidental release measures

***(a) Personal precautions, protective equipment and emergency procedures***

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

***(b) Methods and materials for containment and cleaning up***

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

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## 7. Handling and storage

***(a) Precautions for safe handling***

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.

***(b) Conditions for safe storage, including any incompatibilities***

Don't handling ALKALINE BATTERY with metalwork. Do not open, disassemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.

Prevent formation of dust.

Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

Recommended at 0°C~+35°C for long period storage.

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.

Keep out of reach of children.

Do not expose ALKALINE BATTERY to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

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## 8. Exposure controls/personal protection

# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

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## **(a) Control parameters**

Not established.

## **(b) Appropriate engineering controls**

Under normal conditions (during charge and discharge) release of ingredients does not occur.

## **(c) Personal protective equipment**

Respiratory protection:	No personal respiratory protective equipment normally required. In case of inadequate ventilation wear respiratory protection.
Hand protection:	Wear protective gloves.
Eye/face protection:	No personal protective equipment normally required.
Skin/body protection:	Wear protective clothing to prevent contact.

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## **9. Physical and chemical properties**

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<b>(a) Appearance</b>	Cylindrical solid
<b>(b) Odor</b>	Monotony
<b>(c) Odor threshold</b>	Not available.
<b>(d) pH</b>	Not available.
<b>(e) Melting point/freezing point</b>	Not available.
<b>(f) Initial boiling point and boiling range</b>	Not available.
<b>(g) Flash point</b>	Not applicable.
<b>(h) Evaporation rate</b>	Not applicable.
<b>(i) Flammability</b>	Non flammable.
<b>(j) Upper/lower flammability or explosive limits</b>	Not available.
<b>(k) Vapor pressure</b>	Not applicable.
<b>(l) Vapor density</b>	Not available.
<b>(m) Relative density</b>	Not available.
<b>(n) Solubility(ies)</b>	Insoluble in water.
<b>(o) Partition coefficient: n-octanol/water</b>	Not available.
<b>(p) Auto-ignition temperature</b>	130°C
<b>(q) Decomposition temperature</b>	Not available.
<b>(r) Viscosity</b>	Not available.

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## **10. Stability and reactivity**

### **(a) Reactivity**

Stable under recommended storage and handling conditions.

### **(b) Chemical stability**

Stable under normal conditions.

### **(c) Possibility of hazardous reactions**

When heated above 150°C the risk of rupture occurs. Due to special safety construction, rupture implies controlled release of pressure without ignition.

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Printing date: 19/03/2015

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## ***(d) Conditions to avoid***

Do not subject ALKALINE BATTERY to mechanical shock. Keep away from open flames, high temperature.

## ***(e) Incompatible materials***

Strong oxidizer, strong acid.

## ***(f) Hazardous decomposition products***

Under fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

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## **11. Toxicological information**

### ***(a) Information on the likely routes of exposure***

Inhalation:	Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.
Ingestion:	Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.
Skin contact:	Contact with battery electrolyte may cause burns and skin irritation.
Eye contact:	Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 2, 3, and 4. Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

### ***(b) Information on toxicological characteristics***

<b>Acute toxicity:</b>	No data available.
<b>Skin corrosion/irritation:</b>	The liquid in the battery irritates.
<b>Serious eye damage/irritation:</b>	The liquid in the battery irritates.
<b>Respiratory sensitization:</b>	The liquid in the battery may cause sensitization to some person.
<b>skin sensitization:</b>	The liquid in the battery may cause sensitization to some person.
<b>Carcinogenicity:</b>	Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).
<b>Germ Cell Mutagenicity:</b>	No data available.
<b>Reproductive Toxicity:</b>	No data available.
<b>STOT-Single Exposure:</b>	No data available.
<b>STOT-Repeated Exposure:</b>	No data available.
<b>Aspiration Hazard:</b>	No data available.

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## **12. Ecological information**

### ***(a) Ecotoxicity***

Water hazard class 1(Self-assessment): slightly hazardous for water.

### ***(b) Persistence and Degradability***

No information available.

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## *(c) Bioaccumulative potential*

No information available.

## *(d) Mobility in soil*

No information available.

## *(e) Other adverse effects*

No information available.

## 13. Disposal considerations

### *(a) Safe handling and methods of disposal*

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

## 14. Transport information

According to PACKING INSTRUCTION 965 ~ 970 of IATA DGR 56rd Edition for transportation, the special provision 188 of IMDG (inc Amdt 35-10). The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

<b>(a) UN number</b>	3480&3481
<b>(b) UN Proper shipping name</b>	LITHIUM ION BATTERIES (including lithium ion polymer batteries) or; LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
<b>(c) Transport hazard class(es)</b>	9
<b>(d) Packing group (if applicable)</b>	II
<b>(e) Marine pollutant (Yes/No)</b>	No
<b>(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)</b>	No information available.
<b>(g) Special precautions</b>	No information available.

## 15. Regulatory information

### *(a) Safety, health and environmental regulations specific for the product in question*

CAS No.	USA	EU	Japan	Korea	China	Canada
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	TSCA	EINECS	ENCS	ECL	IECSC	DSL
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed
1310-58-3	Listed	Not listed	Listed	Not listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
RR-01108-5	Listed	Listed	Listed	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Listed	Listed	Listed	Not listed
25038-54-4	Listed	Not listed	Listed	Not listed	Not listed	Not listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed

## 16. Other information, including date of preparation or last revision

### *(a) Preparation and revision information*

Date of previous revision: Not applicable.

Date of this revision: 19/03/2015

Revision summary: The first New SDS

### *(b) Abbreviations and acronyms*

TSCA: Toxic Substances Control Act, The American chemical inventory.  
DSL Domestic Substances List  
EINECS: European Inventory of Existing Commercial chemical Substances  
ENCS Japanese Existing and New Chemical Substances  
ECL: Existing Chemicals List, the Korean chemical inventory.  
IECSC: Inventory of existing chemical substances in China.

### *(c) Disclaimer*

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

----- End of the SDS -----

# Safety Data Sheet

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Revision date: 19/03/2015  
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## 1. Identification

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### *(a) Product identifier*

Product name: ALKALINE BATTERY

### *(b) Other means of identification*

Product description: Model: LR6  
Nominal Voltage: 1.5V  
Weight: 23.0g  
Dimension: 14.5mm×50.5mm (D×H)

### *(c) Recommended use of the chemical and restrictions on use*

Recommended use: Battery.  
Restriction on use: No information available.

### *(d) Details of the supplier of the product*

Company name(China) Guangdong Liwang New Energy Co., Ltd  
Address: Liwang Industrial Estate, Shima Village, Tangxia Town, Dongguan City, Guangdong Province, CHINA  
E-mail: Liwang@Liwangbattery.com  
Telephone: +86-769-87888653

### *(e) Emergency phone number*

+86-769-87888653

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## 2. Hazard(s) identification

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### *(a) Classification of the chemical*

The batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. A sealed ALKALINE BATTERY is not hazardous in normal use.

### *(b) Label elements*

Pictogram(s): No pictogram.  
Signal word: No signal word.  
Hazard statements: No hazard statement.  
Precautionary statements: No precautionary statement.

### *(c) Description of any hazards not otherwise classified*

In case of mistreatment (abusive over charge, reverse charge, external short circuit...) and in case of fault some electrolyte can leak from the cell through the safety device. In these cases refer to the risk of the electrolyte. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. The electrode materials are only hazardous, if the materials are released by mechanical damaging of the cell or if exposed to fire.

Skin touch: Contact with battery electrolyte may cause burns and skin irritation.

Eyes touch: Contact with battery electrolyte may cause burns. Eye damage is possible.

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

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## **(d) Ingredient with unknown acute toxicity**

No information available.

## 3. Composition/information on ingredients

### **(a) Mixtures information**

Chemical name	CAS No.	Concentration%
Iron	7439-89-6	17
Manganese dioxide	1313-13-9	40
Paper	RR-01108-5	1
Potassium hydroxide	1310-58-3	8
Water	7732-18-5	10
Zinc	7440-66-6	16
Copper	7440-50-8	3
Nylon	9008-75-7	2
Graphite	7782-42-5	3

## 4. First-aid measures

### **(a) Description of first aid measures**

- Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice / attention if you feel unwell.
- Skin contact: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing. Get medical advice / attention if you feel unwell.
- Ingestion: Have victim drink 60 to 240 mL (2-8 oz.) of water. and DO NOT induce vomiting. Get medical aid.

### **(b) Most important symptoms/effects, acute and delayed**

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system. Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

### **(c) Immediate medical attention and special treatment**

No information available.

## 5. Fire-fighting measures

### **(a) Extinguishing media**

- Suitable extinguishing media: Use foam, dry powder or dry sand, CO<sub>2</sub> as appropriate.
- Unsuitable extinguishing media: No information available.

### **(b) Special hazards arising from the chemical**

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO,



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CO<sub>2</sub>, Metal oxides, Irritating fumes

***(c) Special protective equipment and precautions for fire-fighters***

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

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## 6. Accidental release measures

***(a) Personal precautions, protective equipment and emergency procedures***

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

***(b) Methods and materials for containment and cleaning up***

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

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## 7. Handling and storage

***(a) Precautions for safe handling***

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.

***(b) Conditions for safe storage, including any incompatibilities***

Don't handling ALKALINE BATTERY with metalwork. Do not open, disassemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.

Prevent formation of dust.

Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

Recommended at 0°C~+35°C for long period storage.

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.

Keep out of reach of children.

Do not expose ALKALINE BATTERY to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

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## 8. Exposure controls/personal protection

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Product name: ALKALINE BATTERY

Revision date: 19/03/2015  
Printing date: 19/03/2015

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## **(a) Control parameters**

Not established.

## **(b) Appropriate engineering controls**

Under normal conditions (during charge and discharge) release of ingredients does not occur.

## **(c) Personal protective equipment**

Respiratory protection:	No personal respiratory protective equipment normally required. In case of inadequate ventilation wear respiratory protection.
Hand protection:	Wear protective gloves.
Eye/face protection:	No personal protective equipment normally required.
Skin/body protection:	Wear protective clothing to prevent contact.

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## **9. Physical and chemical properties**

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<b>(a) Appearance</b>	Cylindrical solid
<b>(b) Odor</b>	Monotony
<b>(c) Odor threshold</b>	Not available.
<b>(d) pH</b>	Not available.
<b>(e) Melting point/freezing point</b>	Not available.
<b>(f) Initial boiling point and boiling range</b>	Not available.
<b>(g) Flash point</b>	Not applicable.
<b>(h) Evaporation rate</b>	Not applicable.
<b>(i) Flammability</b>	Non flammable.
<b>(j) Upper/lower flammability or explosive limits</b>	Not available.
<b>(k) Vapor pressure</b>	Not applicable.
<b>(l) Vapor density</b>	Not available.
<b>(m) Relative density</b>	Not available.
<b>(n) Solubility(ies)</b>	Insoluble in water.
<b>(o) Partition coefficient: n-octanol/water</b>	Not available.
<b>(p) Auto-ignition temperature</b>	130°C
<b>(q) Decomposition temperature</b>	Not available.
<b>(r) Viscosity</b>	Not available.

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## **10. Stability and reactivity**

### **(a) Reactivity**

Stable under recommended storage and handling conditions.

### **(b) Chemical stability**

Stable under normal conditions.

### **(c) Possibility of hazardous reactions**

When heated above 150°C the risk of rupture occurs. Due to special safety construction, rupture implies controlled release of pressure without ignition.

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## ***(d) Conditions to avoid***

Do not subject ALKALINE BATTERY to mechanical shock. Keep away from open flames, high temperature.

## ***(e) Incompatible materials***

Strong oxidizer, strong acid.

## ***(f) Hazardous decomposition products***

Under fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

---

## **11. Toxicological information**

### ***(a) Information on the likely routes of exposure***

Inhalation:	Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.
Ingestion:	Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.
Skin contact:	Contact with battery electrolyte may cause burns and skin irritation.
Eye contact:	Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 2, 3, and 4. Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

### ***(b) Information on toxicological characteristics***

<b>Acute toxicity:</b>	No data available.
<b>Skin corrosion/irritation:</b>	The liquid in the battery irritates.
<b>Serious eye damage/irritation:</b>	The liquid in the battery irritates.
<b>Respiratory sensitization:</b>	The liquid in the battery may cause sensitization to some person.
<b>skin sensitization:</b>	The liquid in the battery may cause sensitization to some person.
<b>Carcinogenicity:</b>	Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).
<b>Germ Cell Mutagenicity:</b>	No data available.
<b>Reproductive Toxicity:</b>	No data available.
<b>STOT-Single Exposure:</b>	No data available.
<b>STOT-Repeated Exposure:</b>	No data available.
<b>Aspiration Hazard:</b>	No data available.

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## **12. Ecological information**

### ***(a) Ecotoxicity***

Water hazard class 1(Self-assessment): slightly hazardous for water.

### ***(b) Persistence and Degradability***

No information available.

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According to HCS-2012 APPENDIX D TO §1910.1200

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## **(c) Bioaccumulative potential**

No information available.

## **(d) Mobility in soil**

No information available.

## **(e) Other adverse effects**

No information available.

## 13. Disposal considerations

### **(a) Safe handling and methods of disposal**

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

## 14. Transport information

According to PACKING INSTRUCTION 965 ~ 970 of IATA DGR 56rd Edition for transportation, the special provision 188 of IMDG (inc Amdt 35-10). The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

<b>(a) UN number</b>	3480&3481
<b>(b) UN Proper shipping name</b>	LITHIUM ION BATTERIES (including lithium ion polymer batteries) or; LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
<b>(c) Transport hazard class(es)</b>	9
<b>(d) Packing group (if applicable)</b>	II
<b>(e) Marine pollutant (Yes/No)</b>	No
<b>(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)</b>	No information available.
<b>(g) Special precautions</b>	No information available.

## 15. Regulatory information

### **(a) Safety, health and environmental regulations specific for the product in question**

CAS No.	USA	EU	Japan	Korea	China	Canada
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# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN  
Product name: ALKALINE BATTERY

Revision date: 19/03/2015  
Printing date: 19/03/2015

	TSCA	EINECS	ENCS	ECL	IECSC	DSL
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
RR-01108-5	Listed	Listed	Listed	Listed	Listed	Listed
1310-58-3	Listed	Not listed	Listed	Not listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed
7440-50-8	Not listed	Listed	Listed	Listed	Listed	Not listed
9008-75-7	Not listed	Listed	Listed	Listed	Listed	Not listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed

## 16. Other information, including date of preparation or last revision

### *(a) Preparation and revision information*

Date of previous revision: Not applicable.

Date of this revision: 19/03/2015

Revision summary: The first New SDS

### *(b) Abbreviations and acronyms*

TSCA: Toxic Substances Control Act, The American chemical inventory.  
DSL Domestic Substances List  
EINECS: European Inventory of Existing Commercial chemical Substances  
ENCS Japanese Existing and New Chemical Substances  
ECL: Existing Chemicals List, the Korean chemical inventory.  
IECSC: Inventory of existing chemical substances in China.

### *(c) Disclaimer*

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

----- End of the SDS -----