

**MATERIAL SAFETY DATA SHEET****1. Chemical Product and Company Identification**

Product Name: Alkaline Button Cell Robot LR41 (0% Hg)  
Manufacturer: DONGGUAN TIANQIU ENTERPRISE CO., LTD  
Address: TianQiu Industrial Park, Xinji Industrial Zone, Machong Town, Dongguan, GuangDong, P.R.China  
Telephone: 0769-81210202

**2. Composition/Information on Ingredients**

Hazardous Components	Approx wt%	CAS #	EC #
Manganese Dioxide (MnO <sub>2</sub> )	23.6	1313-13-9	215-202-6
Zinc (Zn)	10.5	7440-66-6	231-175-3
Graphite (C)	3.0	7782-42-5	231-955-3
Potassium Hydroxide (KOH)	3.2	1310-58-3	215-181-3
Iron (Fe)	48.8	7439-89-6	231-096-4
Nylon-66	2.3	32131-17-2	---
Water(H <sub>2</sub> O)	8.6	7432-18-5	231-791-2
Mercury (Hg)	<0.0001	7439-97-6	231-106-7
Cadmium (Cd)	<0.001	7440-43-9	231-152-8
Lead (Pb)	<0.001	7439-92-1	231-100-4

**3. Hazards Identification**

Routes of Entry: Not applicable under normal conditions

Health Hazards: In case of leakage, will be cause itchy and/or chemical burns when direct contact with electrolyte

Hazards to Environment: Not applicable

Fire and Explosion Hazards: Not applicable

**4. First-aid Measures**

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

Eyes Contact: If a cell is leakage and materials contact eyes, flush immediately with running water for at least 15 minutes. Consult an ophthalmologist at once.

Inhalation: If vapor from vented or leaked cells are inhalation, move to fresh air and get medical attention.

Ingestion: Get immediately medical attention, do not induce vomiting or give a liquid to unconscious person.



## 5. Fire Fighting Measures

Hazard Characteristic: Not available

Hazards Expose to Combustion Products: In case of fire, carbon dioxide, carbon monoxide and other toxic organic substances will be generated. Do not inhale fumes and smoke.

Extinguishing Media: In case of fire, you can use any class of fire extinguisher.

Special Fire Fighting Procedures: Fire fighters should wear self-contained breathing apparatus.

## 6. Accidental Release Measures

Precautions: Avoid direct contact with the leaking or ruptured cells. Avoid short circuit.

Methods for Clean Up: Care for well-ventilated conditions. Recycle or dispose of the materials in an appropriate way.

## 7. Handling and Storage

Precaution: Handling and transfer the products carefully, make sure the packing always in good condition. Damaged packing may cause cells contact together, in this case cells may short circuit or improperly connected, it cause cells venting, leaking or exploding.

Storage: Store in a dry, cool and well-ventilated area.

## 8. Exposure Control/Personal Protection

Exposition/Technical Measures: Atmospheric vapor concentrations must be minimized by adequate ventilation.

Protection of Hands, Eyes, and Skin: No required under normal use conditions. When handling leaking cells, use 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 and Appearance: Cylindrical

Odor: Odorless

pH: N/A

Melting Point (°C): N/A

Specific Gravity (H<sub>2</sub>O=1): N/A

Boiling Point (°C): N/A

Vapor Density (Air=1): N/A

Vapor Pressure (kPa): N/A

Heat of Combustion (kJ/mol): N/A

Critical Temperature (°C): N/A

Critical Pressure (MPa): N/A

Partition Coefficient: N/A

Flash Point (°C): N/A

Ignition Temperature (°C): N/A

Explosion Limit % (V/V): N/A

Solubility in Water: N/A

Solubility in Other Solvents: N/A

**10. Stability and Reactivity**

Stability: Stable

Incompatibility: None

Condition to Avoid: Avoid shorting, mechanical &amp; thermal abuse

Hazardous Polymerization: Will not occur

Hazardous Decomposition: None

**11. Toxicological Information**

Note: Since the materials in this cell are sealed in the can, the potential for exposure to the components of the cell is negligible, when the cell is used as directed. However technical or electrical abuse of the cell may result in the release of cell contents.

Toxicity to Animals: Not applicable

Chronic Effects on Human: Not applicable

**12. Ecological Information**

This product has not been tested for environmental effects.

**13. Disposal Consideration**

Dispose in accordance with Federal, States and local regulations

**14. Transport Information**

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents. All original packaging for TIANQIU Alkaline Button Cells has been designed to be compliant with these regulatory concerns.

Alkaline Button Cells (sometimes referred to as "Dry cell" batteries) are not listed as dangerous goods under the IATA Dangerous Goods Regulation 57 Edition 2016, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following special provisions.

Regulatory Body	Special Provisions
ADR	295 - 304, 598
IMDG	UN 3028 Provisions 295- 304
UN	UN 3028 Provisions 295 - 304
US DOT	49 CFR 172.102 Provision 130
IATA	A123
ICAO	UN 3028 Provisions 295 - 304

All TIANQIU Alkaline Button Cells are packed in such a way to prevent short circuits or the



generation dangerous quantities of heat and meet the special provisions listed above. In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "not restricted" and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.

## **15. Regulatory Information**

Special requirement be according to the local regulators.

## **16. Other information**

Do not heat or dispose of in fire. Do not recharge or disassemble the cell.

### **Notice to reader:**

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