

MATERIAL SAFETY DATA SHEET

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT IDENTIFICATION****HE365 Prismatic Rechargeable Lithium-Ion Battery****MANUFACTURER****Tianjin Lishen Battery Co. Ltd****ADDRESS****6 Lanyuan Road, Huayuan Hi-Tech Industry Park, TianJin, China.****DATE :****2018-11-16****TELEPHONE:****86-022-83710366****FAX:****86-022-83710375****2. COMPOSITION INFORMATION**

| INGREDIENTS | % | CAS NUMBER |
|--------------------------------|-----------|------------|
| Aluminum Foil | 2-10 | 7429-90-5 |
| Metal Oxide (proprietary) | 20-50 | 12190-79-3 |
| Polyvinylidene Fluoride (PVDF) | <5 | 24937-79-9 |
| Copper Foil | 2-10 | 7440-50-8 |
| Carbon (proprietary) | 10-30 | 7440-44-0 |
| Electrolyte (proprietary) | 10-20 | 21324-40-3 |
| Carboxymethyl Cellulose (CMC) | <2 | 9085-26-1 |
| Styrene butadiene rubber (SBR) | <2 | 9003-55-8 |
| Aluminum and inert materials | Remainder | 7429-90-5 |

3. HAZARDS IDENTIFICATION**PRIMARY ROUTES OF ENTRY**

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Skin contact, Skin absorption, Eye contact, Inhalation, and Ingestion : NO

SYMPTOMS OF EXPOSURE

Skin contact

No effect under routine handling and use.

Skin absorption

No effect under routine handling and use.

Eye contact

No effect under routine handling and use.

Inhalation

No effect under routine handling and use.

REPORTED AS CARCINOGEN

Not applicable

4. FIRST AID MEASURES

INHALATION, EYE CONTACT, and SKIN CONTACT : Not a health hazard.

INGESTION

If swallowed, obtain medical attention immediately.

If exposure to internal materials within cell due to damaged outer casing, the following actions are recommended.

INHALATION

Leave area immediately and seek medical attention.

EYE CONTACT

Rinse eyes with water for 15 minutes and seek medical attention.

SKIN CONTACT

Wash area thoroughly with soap and water and seek medical attention.

INGESTION

Drink milk/water and induce vomiting; seek medical attention.

5. FIRE FIGHTING MEASURES

GENERAL HAZARD

Cell is not flammable but internal organic material will burn if the cell is incinerated. Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide.

EXTINGUISHING MEDIA

Use extinguishing media suitable for the materials that are burning.

SPECIAL FIREFIGHTING INSTRUCTIONS

If possible, remove cell(s) from fire fighting area. If heated above 120°C, cell(s) **can** explode/vent.

FIREFIGHTING EQUIPMENT

Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

6. ACCIDENTAL RELEASE MEASURES**ON LAND**

Place material into suitable containers and call local fire/police department.

IN WATER

If possible, remove from water and call local fire/police department.

7. HANDLING AND STORAGE**HANDLING**

No special protective clothing required for handling individual cells.

STORAGE

Store in a cool, dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**ENGINEERING CONTROLS**

Keep away from heat and open flame. Store in a cool dry place.

PERSONAL PROTECTION

Respirator: Not required during normal operations. SCBA required in the event of a fire.

Eye/face protection: Not required beyond safety practices of employer.

Gloves: Not required for handling of cells.

Foot protection: Steel toed shoes recommended for large container handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------------|-----------|
| State | Solid |
| Odor | N/A |
| PH | N/A |
| Vapor pressure | N/A |
| Vapor density | N/A |
| Boiling point | N/A |
| Solubility in water | Insoluble |
| Specific gravity | N/A |
| Density | N/A |

10. STABILITY AND REACTIVITY**REACTIVITY**

None

INCOMPATIBILITIES

None during normal operation. Avoid exposure to heat, open flame, and corrosives.

HAZARDOUS DECOMPOSITION PRODUCTS

None during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

CONDITIONS TO AVOID

Avoid exposure to heat and open flame. Do not puncture, crush or incinerate.

11. TOXICOLOGICAL INFORMATION

This product does not elicit toxicological properties during routine handling and use.

| | | | |
|----------------|-----------------|------------------------|-----------------|
| Sensitization: | Teratogenicity: | Reproductive toxicity: | Acute toxicity: |
| NO | NO | NO | NO |

This product does not contain any kinds of the following substances and halogen-type flame retardants including Chlorine and Bromide type harmful flame retardants which are listed in Appendix of TCO documents and relevant international ECO requirements:

Polybromated Biphenyls (PBB)
Polybromated Biphenyl Ethers (PBBE)

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Polybromated Biphenyl Oxides (PBBO)
Polybromated Diphenylethers (PBDE)
Polychlorinated Biphenyl (PCB)
Polychlorinated Diphenylethers (PCDE)
Tetrabromophenol A (TBBPA)
Asbestos, Antimonytrioxide, Dioxine

None of the following substances will be exposed, leaked, or emitted during transportation, storage or any operation and any temperature condition:

Chlorinated Fluorohydrocarbon (FCKW)
Acrylonitrile
Styrol
Phenol
Benzol
Mercury of greater than 0.0001 wt% for alkaline battery
Mercury of greater than 0.0005 wt% for other battery
Lithium content of greater than 0.5g/battery cell
Cadmium, lead, and other harmful heavy metal

And will comply with the regulation of 49 CFR (DOT regulation), International Air Transport Association (IATA), and Deuche Forschungsgemeinschaft (DFG) regarding concentrations of emitted substances.

This product does not contain mercury and lithium-metal.

Mercury content: <

Lithium-metal content: <

If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

12. ECOLOGICAL INFORMATION

Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

13. DISPOSAL INFORMATION

Recommended methods for safe and environmentally preferred disposal :

Product(waste from residues)

Do not throw out a used battery cell. Recycle it through the recycling company.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

RCRA Waste Code: Nonregulated

Dispose of according to all federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

Lishen' HE365 Lithium-Ion cells are considered to be "Rechargeable Lithium Ion Polymer Batteries" and meet the requirements of transportation by the International: Civil Aviation Organization (ICAO) Technical Instructions (2014-2015 Edition), the International Air Transport Association (IATA) Dangerous Goods Regulations (59th Edition, 2018). Packing instruction 965 Section IB or II for Lithium Ion battery, the International Maritime Dangerous Goods (IMDG) Code (2010 Edition) with special provision 188 & 230, US Hazardous Materials Regulations 49 CFR (Code of Federal Regulations) Sections 173-185 Lithium batteries and cells. the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries, 4th revised edition (UN3480) as "non-dangerous goods" or "non-hazardous materials". The mentioned batteries are complied with the special provision, Section I of PI965 to PI967. These lithium batteries can be transported in nonrestrictive material and as Non-Dangerous Goods as they meet all the requirements in below:

1 • Lithium content requirement

1.1 For the bar cells, the lithium content can not overpass 20Wt/h;

1.2 For the batteries, the lithium content can not overpass 100Wt/h;

2 Meet with UN Test Requirement

2.1 All the cell and battery must be verified to meet with all the requirements in Part 3 -38.3 item (UN38.3 tests) for "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria".

3 Package Requirement

3.1 The cell and battery must be packaged specially and singly, and put into hard outer package to prevent short-circuit if they do not be assembled in finished equipments (such as mobile phone, camera, NBPC, and so on)

3.2 The cell quantity is more than 24pcs or the battery quantity is more than 12pcs, they must be asked to meet with the requirements in blow besides they are assembled in finished equipment.

a Every package must be marked in the content that the packages are loaded in lithium cells or batteries, also add new lithium iron operation label, also need point out the corrective actions when the packages are damaged.

b Every batch shipment must be appendixes document which should contain the content that the packages are loaded in lithium cells or batteries, also need point out the corrective actions when the packages are damaged.

c Every package must pass 1.2mm fall test in any direction. No damage for the cells and batteries, no move and touch together, no cells or batteries escape from the package.

d Every package weight can not overpass 10kg if the batteries can not be assembled in finished equipment.

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Test results of the UN Recommendation on the Transport of Dangerous Goods

| Manual of Test and Criteria (38.3 Lithium battery) | | Test Results | Remark |
|--|------------------------|--------------|---------------|
| No | Test item | Pass | |
| T1 | Altitude Simulation | Pass | |
| T2 | Thermal Test | Pass | |
| T3 | Vibration | Pass | |
| T4 | Shock | Pass | |
| T5 | External Short Circuit | Pass | |
| T6 | Impact | Pass | |
| T7 | Overcharge | Pass | For pack only |
| T8 | Forced Discharge | Pass | For cell only |

15. REGULATORY INFORMATION

OSHA hazard communication standard (29 CFR 1910.1200)

☐ Hazardous ☒ Non-hazardous

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide.

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Prepared and Approved By

TianJin Lishen Battery Company

R&D Center

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