# MATERIAL SAFETY DATA SHEET

**For Lithium-ion Rechargeable Battery ICR18650 2600mAh 3.7V of Pow-tech**

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT IDENTIFICATION

Powtech Lithium-ion Cell
Powtech 18650 2600mAh 3.7V Lithium-ion Battery
(Equivalent Lithium content: 45g/pc and 9.62Wh/battery pack)

### MANUFACTURER

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## 2. COMPOSITION INFORMATION

| HAZARDOUS INGREDIENTS | % | CAS NUMBER |
|---|---|---|
| Lithium Cobalt Dioxide（LiCoO2） | 35% | 12190-79-3 |
| Graphite（C） | 18% | 7782-42-5 |
| Electrolyte (LiPF6) | 10% | 21324-40-3 |
| Copper Foil | 6% | 7440-50-8 |
| Aluminum Foil | 5% | 7429-90-5 |
| Polyvinylidene Fluoride | 2% | 24937-79-9 |
| Nickel （Ni） | 8% | 7440-02-0 |
| Iron (Fe) | 15% | 7439-89-6 |
| Polyethylene | 1% | 9002-88-4 |

## 3. HAZARDS IDENTIFICATION

### Emergency Overview

May explode in a fire, which could release hydrogen fluoride gas and smoke.
Use extinguishing media suitable for materials burning in fire

### PRIMARY ROUTES OF ENTRY

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

| | |
|---|---|
| Skin contact | No |
| Skin absorption | No |
| Eye contact | No |
| Inhalation | No |
| Ingestion | No |

**\SIGNS AND 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 |
| Ingestion | No effect under routine handling and use |
| Reported as Carcinogen | Not applicable |

## 4. 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 130°C, cell(s) may Swell/explode/vent.

### FIREFIGHTING EQUIPMENT

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

## 5. 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.

## 6. HANDLING AND STORAGE

### HANDLING

No special protective clothing required for handling individual cells.

### STORAGE

Store in a cool, dry place

## 7. 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.

## 8. PHYSICAL AND CHEMICAL PROPERTIES

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

## 9. STABILITY AND REACTIVITY

**REACTIVITY**

None during normal operating or handling conditions.

**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.

## 10. TOXICOLOGICAL INFORMATION

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

| | |
|---|---|
| Sensitization | No |
| Acute toxicity | No |
| Teratogenicity | No |
| Reproductive toxicity | 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) |
| Polybromated Biphenyl Oxides | (PBBO) |
| Polybromated Diphenylethers | (PBDE) |
| Polychlorinated Biphenyl | (PCB) |
| Polychlorinated Diphenylethers | (PCDE) |
| Tetrabromphisphenol 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) |
| Acrylonitride |
| Styrol |
| Phenol |
| Benzol |
| Mercury of great less than 0.0001 wt% for alkaline battery |
| Mercury of great less than 0.0005 wt% for other battery |
| Lithium content of great less than 0.5g/cell, 1.5g/battery |
| Cadmium, lead, and other harmful heavy metal |

This product does not contain mercury, cadmium and lithium-metal.

| | |
|---|---|
| Mercury content | N/A |
| Lithium-metal | N/A |
| Cadmium content | N/A |

**CAUTION**

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

## 11. ECOLOGICAL INFORMATION

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

## 12. DISPOSAL CONSIDERATIONS

CALIFORNIA REGULATED DEBRIS

RCRA Waste Code: Non-regulated

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

## 13. REGULATORY INFORMATION

OSHA hazard communication standard (29 CFR 1910.1200)

□ Hazardous ■ Non-hazardous

## 14. TRANSPORT INFORMATION

Lithium ion batteries containing no more than 20Wh/cell and 100 Wh /battery pack can be treated as “Non-dangerous goods” under the United Nations Recommendations on the Transport of Dangerous Goods, provided that packaging is strong and prevent the products from short-circuit.
With regard to air transport, the following regulations are cited and considered:
I) The International Civil Aviation Organization (ICAO) Technical Instructions (2016-2017 Edition)
II) 2016 International Air Transport Association (IATA) Dangerous Goods Regulations ((57th ed.) Section IA/IB& II of PI965/PI966/PI967,
III) The International Maritime Dangerous Goods (IMDG) Code: special provision 188,
IV) The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA (Part 49 CFR Sections 100-185),
V) The Office of Hazardous Materials Safety within the US Department of Transportation’s (DOT) Research and Special Programs Administration (RSPA), and
VI) The UN classification number: Class 9 3480.

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1～T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria that can be treated as “Non-Dangerous Goods”

| Manual of Test and Criteria(38.3 Lithium battery) | | | |
|---|---|---|---|
| Test Item | | Test Results | Remark |
| 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. EMERGENCY AND FIRST AID MEASURES

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

**INGESTION**

If swallowed, obtain medical attention immediately.

**CAUTION**

**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

## 16. OTHER INFORMATION

For further information, please contact Shenzhen powtech New Power Co., Ltd. sales representative.

**Note:**

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