

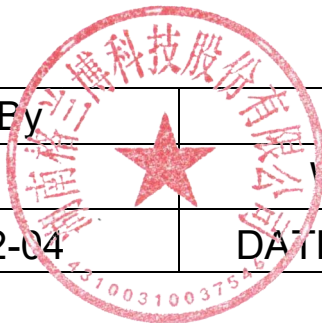


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## MATERIAL SAFETY DATA SHEET

Product Name : Lithium-polymer battery  
Model : PL803623 - 660mAh  
PN: 616040

|                  |                  |
|------------------|------------------|
| Approved By      | Checkup          |
| Liu Tao          | Wang Zhen        |
| DATE: 2025-02-04 | DATE: 2025-02-04 |



**MATERIAL SAFETY DATA SHEET**

Revision:1.0

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT IDENTIFICATION: Lithium-polymer battery

Model: PL803623-660mAh

PN: 616040

Nominal Voltage: 3.7V

Nominal capacity: 660mAh

Wh rating: 2.442Wh

MANUFACTURER: Hunan Grand-Pro Tech Co.,Ltd.

ADDRESS: Intersection of Shihu Ave.and Linjing 2nd Rd.SuXian District, Chenzhou,  
Hunan,China.

valid period: At the end of 2025

Tel: (86)735-2668188

Fax: (86)735-2668799

**2. COMPOSITION INFORMATION**

| INGREDIENTS                                       | %      | CAS NUMBER                                  |
|---|--------|---|
| Lithium Cobalt Oxide (LiCoO <sub>2</sub> )        | 38.71% | 12190-79-3                                  |
| Carbon (Graphite)                                 | 19.73% | 7440-11-0                                   |
| Electrolyte (LiPF <sub>6</sub> /EC/DMC/EMC)       | 16.19% | 21324-40-3 /96-49-1<br>/616-38-6 / 623-53-0 |
| Aluminum  | 4.65%  | 7429-90-5                                   |
| Copper  | 10.22% | 7440-50-8                                   |
| Hexafluoropropylene-Vinylidene-Fluoride Copolymer | 7.84%  | 9011-17-0                                   |
| PP/PE/PET   | 2.63%  |   |

**3. HAZARDS IDENTIFICATION**

Emergency Overview (including Signs and Symptoms, Route(s) of Entry, etc.)

Intact batteries present no specific hazards.

Acute Health Hazards (e.g., Inhalation, Eye Contact, Skin Contact, Ingestion, etc.):

Burning batteries: AVOID inhalation of toxic fumes. Burning batteries emit toxic fumes, which are irritating to the lungs.

Leaking batteries: AVOID exposure to leaking electrolyte, it can cause severe irritation and/or damage to the skin, mucous membrane or eyes.

Chronic Health Effects (e.g., Carcinogenicity, Teratology, Reproduction, Mutagenicity, etc.):

Cobalt: Suspected human carcinogenic agent.

Medical Conditions Generally Aggravated by Exposure: None.

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## **4. FIRST AID MEASURES**

### INGESTION

If swallowed, obtain medical attention immediately.

### INHALATION

If battery is burning, leave the area immediately. If exposed to fumes, seek medical attention promptly.

### EYE CONTACT

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

### SKIN CONTACT

If battery electrolyte leaks on to the skin flush the affected area for at least 15 minutes with clean water. DO NOT attempt to neutralize. Seek medical attention promptly.

### INGESTION

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

## **5. FIRE FIGHTING MEASURES**

Flammable Properties: N/A

Flashpoint: Method:

Autoignition Temperature:

Flammable Limits: N/A

Lower flammable limit: Upper flammable limit:

Hazardous Combustion Products: Burning batteries may emit acrid smoke irritating fumes, and toxic fumes of fluoride.

Extinguishing Media: Carbon dioxide (CO<sub>2</sub>) or dry chemical fire extinguisher, 10-B: C.

Fire Fighting Instructions:

Personnel: Fight the fire in a defensive mode, while exiting the area. When using a CO<sub>2</sub> fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO<sub>2</sub> extinguishing agent.

Firefighters: Use a self-contained breathing apparatus (SCBA).

## **6. ACCIDENTAL RELEASE MEASURES**

Small Spill: If batteries show signs of leaking, AVOID skin or eye contact with the material leaking from the battery. Use chemical resistant rubber gloves and non-flammable absorbent materials for clean-up.

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**

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Handling: Recharge batteries IAW methods specified in applicable technical manuals.

DO NOT:

Overcharge this battery.

Abuse, mutilate or short circuit the battery.

Storage: Gain approval for storage areas from the Installation Fire Department. Store batteries in a cool

(i.e., 130 F), dry and well ventilated area.

DO NOT:

Store batteries in direct sunlight or under hot conditions.

Smoke and keep batteries away from open flame or heat.

Store batteries in the same stacks with hazardous materials.

Store batteries in office areas, or other areas where personnel congregate. Work/  
Hygienic Practices: Thoroughly wash hands after cleaning-up a battery spill (i.e.,  
leaking or venting batteries). NO eating, drinking or smoking in battery storage areas.

## **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**

Boiling Point @ 760 mm Hg (°C): NA

Vapor Pressure (mm Hg @ 25°C): NA

Vapor Density (Air = 1): NA

Density (grams/cc): NA

Percent Volatile by Volume (%): NA

Evaporation Rate (Butyl Acetate = 1): NA

Physical State: NA

Solubility in Water (% by Weight): NA

pH: NA

Appearance and Odor: geometric solid object

## **10. STABILITY AND REACTIVITY**

Stable or unstable: Stable

Incompatibility (Materials to avoid) : NA

Hazardous decomposition products: NA

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Decomposition temperature (0°F): NA  
Hazardous polymerization: Will Not Occur  
Condition to Avoid: Avoid electrical shorting

**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)
- 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

This product does not contain mercury and lithium-metal.

Mercury content:<

Lithium-Ion 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 :

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**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**

For the international transport of lithium batteries, they must comply with these regulations: the International Maritime Dangerous Goods (IMDG) Code by International Maritime Organization (IMO), Dangerous Goods Regulations (DGR) by International Air Transport Association (IATA) and Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI) by International Civil Aviation Organization (ICAO). These regulations are based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria. Lithium batteries which meet the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3) could be transported by air and by sea as ordinary goods, otherwise should be transported according to Class 9, Packing Group II hazardous goods. As the published of the UN Recommendations on the Transport of Dangerous Goods, all these regulations have added some new contents to regulate the transport of lithium ion batteries. We regard to air transport, the following regulations are cited and considered:

1. For lithium ion batteries, UN ID number is 3480 or Lithium Ion Batteries contained in equipment or Lithium Batteries packed with equipment, UN ID number 3481, Transport hazard No:9.
2. The International Air Transport Association(IATA) Dangerous Goods Regulations(66<sup>th</sup> Edition 2025: complies with current IATA packing instruction of PI965-967).
3. For transported by air, Lithium-ion Cells/Batteries shipped as "Not Restricted" Cargo: Must comply with section II of P1965- P1967; For cells, the Watt-hour rating should not be more than 20Wh; For batteries, the Watt-hour rating should not be more than 100Wh. Watt- hour rating must be marked on the outside of the battery case (marked by manufacturer). (Except those manufactured before 1 January 2009, which may be transported without this marking until 31 December 2014).
4. Each consignment must be accompanied with a document such as an air waybill with an indication. For those Lithium ion cells/ batteries contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for Grand-Pro cells is +86-735-2668188.
5. Quantity per package shall not exceed 10kg.
6. Each package must be capable of withstanding a 1.2m drop test in any orientation without damage of cells or batteries contained therein.
7. Lithium batteries which meet the requirements of A154 could be transported by

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air, ( A154 Lithium batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport. )

8. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit.

9. Comply with SP188 of Imdg.  
Mode of transport: to air, sea, railway, highway-based.

| Manual of Test and Criteria (38.3 Lithium battery) |                        | Test Results | Remark        |
|--|------------------------|--------------|---------------|
| No.  | Test Item              |              |               |
| 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 Pack Only |

**15. REGULATORY INFORMATION**

Non-hazardous

**16. OTHER INFORMATION**

The information above is believed to be accurate and represents the best information currently available to us. However, Grand-Pro makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration. This material safety data sheet provides guidelines for the safe handling and use of this product, it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

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