

# SAFETY DATA SHEET

## Rechargeable Li-ion battery FL4874M

Pylon Technologies Co., Ltd.

# SDS

- According to GHS (Eighth Revised Edition)

### Section 1 Product and Company Identification

#### > Product Identifier

**Product Name** Rechargeable Li-ion battery Force L2-FL4874M  
**Synonyms** -

#### > Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

**Relevant Identified Uses** Please consult manufacturer.  
**Uses Advised Against** Please consult manufacturer.

#### > Details of the Supplier of the Safety Data Sheet

**Applicant Name** Pylon Technologies Co., Ltd.  
**Application Address** No.73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China  
**Applicant Post Code** 200120  
**Applicant Telephone** +86-21-51317697  
**Applicant E-mail** xu.min@pylontech.com.cn  
**Supplier Name** Pylon Technologies Co., Ltd.  
**Supplier Address** Plant 8, No.505 Kunkai Road, Jinxi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA  
**Supplier Post Code** 215300  
**Supplier Telephone** +86-21-51317697  
**Supplier E-mail** xu.min@pylontech.com.cn

#### > Details of Australian local importer

**Importer Name** Master Instruments P/L  
**Importer Address** 13 Sheridan Close, Milperra NSW 2214, Australia  
**Importer Telephone** +61 2 9519 1200  
**Importer Email** sales@master-instruments.com.au

### Section 2 Hazards Identification

#### Hazard class and label elements of the product according to GHS (the eighth revised edition):

##### > GHS Hazard Class

This product meets the definition of an article. Under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar definition, are outside the scope of the system. [Rev.8 (2019) Part 1.3.2.1.1]

##### > GHS Label Elements

**Pictogram** Not applicable

**Signal Word** **Not applicable**

**> Hazard Statements**

Not applicable

**> Precautionary Statements**

**Prevention**

Do not open or disassemble.

Do not expose to high temperatures or open fire.

Do not mix with batteries of varying sizes, chemistries or types.

Avoid using external impact battery.

**Response**

Not applicable

**Storage**

Store under roof in cool, dry, well-ventilated areas.

**Disposal**

Dispose of contents/container in accordance with local/regional/national/international regulations.

### Section 3 Composition/Information on Ingredients

| Component                   | Concentration (weight percent, %) | CAS No.     | EC No.    |
|-----------------------------|-----------------------------------|-------------|-----------|
| Lithium Iron Phosphate      | Commercial secrets                | 15365-14-17 | -         |
| Graphite                    | Commercial secrets                | 7782-42-5   | 231-955-3 |
| Copper                      | Commercial secrets                | 7440-50-8   | 231-159-6 |
| Aluminium                   | Commercial secrets                | 7429-90-5   | 231-072-3 |
| Poly(vinylidene difluoride) | Commercial secrets                | 24937-79-9  | 200-867-7 |
| Carbon black                | Commercial secrets                | 1333-86-4   | 215-609-9 |
| Polyacrylic acid            | Commercial secrets                | 9003-01-4   | 202-415-4 |
| Lithium hexafluorophosphate | Commercial secrets                | 21324-40-3  | 244-334-7 |
| Nickel                      | Commercial secrets                | 7440-02-0   | 231-111-4 |

### Section 4 First Aid Measures

**> Description of First Aid Measures**

**General Advice**

Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

**Eye Contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

**Skin Contact**

Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

**Ingestion**

Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

**Inhalation**

Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not

**Protecting of First-aiders** breathing, give artificial respiration and consult a physician immediately. Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

**> Most Important Symptoms and Effects, both Acute and Delayed**

- 1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

**> Indication of Any Immediate Medical Attention and Special Treatment Needed**

- 1 Treat symptomatically.
- 2 Symptoms may be delayed.

## Section 5 Fire Fighting Measures

**> Extinguishing Media**

**Suitable Extinguishing Media** Dry chemical, carbon dioxide or alcohol-resistant foam.

**Unsuitable Extinguishing Media** Do not use a solid water stream as it may scatter or spread fire.

**> Specific Hazards Arising from the Substance or Mixture**

- 1 Containers may explode when heated.
- 2 Fire exposed containers may vent contents through pressure relief valves.
- 3 May expansion or decompose explosively when heated or involved in fire.

**> Advice for Firefighters**

- 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
- 2 Fight fire from a safe distance, with adequate cover.
- 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Section 6 Accidental Release Measure

**> Personal Precautions, Protective Equipment and Emergency Procedures**

- 1 Ensure adequate ventilation. Remove all sources of ignition.
- 2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- 3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

**> Environmental Precautions**

- 1 Prevent further leakage or spillage if safe to do so.
- 2 Discharge into the environment must be avoided.

**> Methods and Materials for Containment and Cleaning Up**

- 1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
- 2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- 3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## Section 7 Handling and Storage

**> Precautions for Handling**

- 1 Handling is performed in a well ventilated place.
- 2 Wear suitable protective equipment.
- 3 Avoid contact with skin and eyes.
- 4 Keep away from heat/sparks/open flames/ hot surfaces.
- 5 Take precautionary measures against static discharges.

**> Precautions for Storage**

- 1 Keep containers tightly closed.
- 2 Keep containers in a dry, cool and well-ventilated place.
- 3 Keep away from heat/sparks/open flames/ hot surfaces.
- 4 Store away from incompatible materials and foodstuff containers.

**Section 8 Exposure Controls/Personal Protection****> Control Parameters****Occupational Exposure Limit Values**

| Component                 | Country/Region  | Limit Value - Eight Hours |                   | Limit Value - Short Term |                   |
|---------------------------|-----------------|---------------------------|-------------------|--------------------------|-------------------|
|                           |                 | ppm                       | mg/m <sup>3</sup> | ppm                      | mg/m <sup>3</sup> |
| Graphite<br>7782-42-5     | USA - OSHA      | -                         | 15                | -                        | -                 |
|                           | South Korea     | -                         | 2                 | -                        | -                 |
|                           | Ireland         | -                         | 10                | -                        | -                 |
|                           | Germany (DFG)   | -                         | 4                 | -                        | -                 |
|                           | Denmark         | -                         | 2.5               | -                        | 5                 |
|                           | Australia       | -                         | 3 (4)             | -                        | -                 |
| Copper<br>7440-50-8       | The Netherlands | -                         | 0.1               | -                        | -                 |
|                           | Poland          | -                         | 0.2               | -                        | -                 |
|                           | Latvia          | -                         | 0.5               | -                        | 1                 |
|                           | Germany (DFG)   | -                         | 0.01              | -                        | 0.02              |
| Aluminium<br>7429-90-5    | USA - OSHA      | -                         | 15                | -                        | -                 |
|                           | South Korea     | -                         | 10                | -                        | -                 |
|                           | Ireland         | -                         | 1                 | -                        | -                 |
|                           | Germany (DFG)   | -                         | 4                 | -                        | -                 |
|                           | Denmark         | -                         | 5                 | -                        | 10                |
|                           | Australia       | -                         | 10                | -                        | -                 |
| Carbon black<br>1333-86-4 | USA - OSHA      | -                         | 3.5               | -                        | -                 |
|                           | South Korea     | -                         | 3.5               | -                        | -                 |
|                           | Ireland         | -                         | 3.5               | -                        | 7                 |
|                           | France          | -                         | 3.5               | -                        | -                 |
|                           | Denmark         | -                         | 3.5               | -                        | 7                 |
|                           | Australia       | -                         | 3                 | -                        | -                 |
| Nickel<br>7440-02-0       | USA - OSHA      | -                         | 1                 | -                        | -                 |
|                           | South Korea     | -                         | 1                 | -                        | -                 |

|  |           |   |      |   |     |
|--|-----------|---|------|---|-----|
|  | Ireland   | - | 0.5  | - | -   |
|  | Hungary   | - | 0.1  | - | 0.1 |
|  | Denmark   | - | 0.05 | - | 0.1 |
|  | Australia | - | 1    | - | -   |

**Biological Limit Values**

| Component                   | Source    | Biological monitoring index | Biological limits value | Sampling time | remark |
|-----------------------------|-----------|-----------------------------|-------------------------|---------------|--------|
| Lithium hexafluorophosphate | SCOEL(EU) | Fluorine/urine              | 8mg/L                   | end of shift  |        |

**Monitoring Methods**

- 1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- 2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

**> Engineering Controls**

- 1 Ensure adequate ventilation, especially in confined areas.
- 2 Ensure that eyewash stations and safety showers are close to the workstation location.
- 3 Use explosion-proof electrical/ventilating/lighting/equipment.
- 4 Set up emergency exit and necessary risk-elimination area.

**> Personal Protection Equipment**

|                                 |                                                                                                                                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Protection</b>           | Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).                                                                                                                              |
| <b>Hand Protection</b>          | Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.                                                                       |
| <b>Respiratory protection</b>   | If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges. |
| <b>Skin and Body Protection</b> | Wear fire/flame resistant/retardant clothing and antistatic boots.                                                                                                                                 |

## Section 9 Physical and Chemical Properties

|                                                                           |                                                                                                                           |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Appearance:</b> Li-ion battery, individually packaged, 48V 74Ah 3552Wh | <b>Odor:</b> No information available                                                                                     |
| <b>Odor Threshold:</b> No information available                           | <b>pH:</b> No information available                                                                                       |
| <b>Melting Point/Freezing Point (°C):</b> No information available        | <b>Initial Boiling Point and Boiling Range (°C):</b> No information available                                             |
| <b>Flash Point (°C)( Closed Cup):</b> Not applicable                      | <b>Evaporation Rate:</b> Not applicable                                                                                   |
| <b>Flammability:</b> No information available                             | <b>Upper/lower explosive limits[%(v/v)]:</b> Upper limit: No information available; Lower limit: No information available |
| <b>Vapor Pressure (KPa):</b> Not applicable                               | <b>Relative Vapour Density(Air = 1):</b> Not applicable                                                                   |
| <b>Relative Density(Water=1):</b> No information available                | <b>Solubility:</b> No information available                                                                               |
| <b>n-Octanol/Water Partition Coefficient:</b> No information available    | <b>Auto-Ignition Temperature(°C):</b> No information available                                                            |
| <b>Decomposition Temperature (°C):</b> No information available           | <b>Kinematic Viscosity (mm<sup>2</sup>/s):</b> Not applicable                                                             |
| <b>Particle characteristics:</b> No information available                 |                                                                                                                           |

## Section 10 Stability and Reactivity

|                                           |                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reactivity</b>                         | Contact with incompatible substances can cause decomposition or other chemical reactions.                                                                                                                                                                                                                              |
| <b>Chemical Stability</b>                 | Stable under proper operation and storage conditions.                                                                                                                                                                                                                                                                  |
| <b>Possibility of Hazardous Reactions</b> | Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Ultrafine powder will self-ignite in the air at room temperature.                                                                               |
| <b>Conditions to Avoid</b>                | Incompatible materials, heat, flame and spark.                                                                                                                                                                                                                                                                         |
| <b>Incompatible Materials</b>             | Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury. |
| <b>Hazardous Decomposition products</b>   | Under normal conditions of storage and use, hazardous decomposition products should not be produced.                                                                                                                                                                                                                   |

## Section 11 Toxicological Information

### > Acute Toxicity

| Component        | CAS No.   | LD <sub>50</sub> (Oral) | LD <sub>50</sub> (Dermal) | LC <sub>50</sub> (Inhalation, 4h) |
|------------------|-----------|-------------------------|---------------------------|-----------------------------------|
| Carbon black     | 1333-86-4 | > 15400mg/kg(Rat)       | > 3000mg/kg(Rabbit)       | No information available          |
| Polyacrylic acid | 9003-01-4 | 2500mg/kg(Rat)          | No information available  | No information available          |

### > Skin Corrosion/Irritation

No information available

### > Serious Eye Damage/Irritation

No information available

### > Skin Sensitization

No information available

### > Respiratory Sensitization

No information available

### > Germ Cell Mutagenicity

No information available

### > Carcinogenicity

| ID | CAS No.     | Component                   | IARC        | NTP        |
|----|-------------|-----------------------------|-------------|------------|
| 1  | 15365-14-17 | Lithium Iron Phosphate      | Not Listed  | Not Listed |
| 2  | 7782-42-5   | Graphite                    | Not Listed  | Not Listed |
| 3  | 7440-50-8   | Copper                      | Not Listed  | Not Listed |
| 4  | 7429-90-5   | Aluminium                   | Not Listed  | Not Listed |
| 5  | 24937-79-9  | Poly(vinylidene difluoride) | Not Listed  | Not Listed |
| 6  | 1333-86-4   | Carbon black                | Category 2B | Not Listed |
| 7  | 9003-01-4   | Polyacrylic acid            | Category 3  | Not Listed |
| 8  | 21324-40-3  | Lithium hexafluorophosphate | Not Listed  | Not Listed |
| 9  | 7440-02-0   | Nickel                      | Category 2B | Not Listed |

> **Reproductive Toxicity**

No information available

> **Reproductive Toxicity (Additional)**

No information available

> **STOT-Single Exposure**

No information available

> **STOT-Repeated Exposure**

No information available

> **Aspiration Hazard**

No information available

## Section 12 Ecological Information

> **Acute Aquatic Toxicity**

| Component | CAS No.   | Fish                                     | Crustaceans                       | Algae                             |
|-----------|-----------|------------------------------------------|-----------------------------------|-----------------------------------|
| Aluminium | 7429-90-5 | LC <sub>50</sub> : 1.55mg/L (96h)(Fish)  | No information available          | No information available          |
| Copper    | 7440-50-8 | LC <sub>50</sub> : 0.665mg/L (96h)(Fish) | EC <sub>50</sub> : 0.02mg/L (48h) | ErC <sub>50</sub> : 7.9mg/L (96h) |
| Nickel    | 7440-02-0 | LC <sub>50</sub> : 40mg/L (96h)(Fish)    | EC <sub>50</sub> : 1mg/L (48h)    | No information available          |

> **Chronic Aquatic Toxicity**

No information available

> **Others**

**Persistence and Degradability**

No information available

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bioaccumulative Potential</b>          | No information available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Mobility in Soil</b>                   | No information available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Results of PBT and vPvB Assessment</b> | <p>Lithium Iron Phosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Graphite does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Copper does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Aluminium does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Poly(vinylidene difluoride) does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Carbon black does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Polyacrylic acid does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Lithium hexafluorophosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> <p>Nickel does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.</p> |

### Section 13 Disposal Considerations

|                                                        |                                                                                                                                                                                        |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Waste Chemicals</b>                                 | Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.                                                       |
| <b>Contaminated Packaging Disposal Recommendations</b> | Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. Refer to section 13.1 and 13.2. |

### Section 14 Transport Information

Transporting Label



|                                          |                                                                    |
|------------------------------------------|--------------------------------------------------------------------|
| <b>Marine pollutant</b>                  | None                                                               |
| <b>UN Number</b>                         | 3480                                                               |
| <b>UN Proper Shipping Name</b>           | LITHIUM ION BATTERIES(including lithium ion polymer batteries)     |
| <b>Transport Hazard Class</b>            | 9                                                                  |
| <b>Transport Subsidiary Hazard Class</b> | NONE                                                               |
| <b>Packing Group</b>                     | Packagings shall conform to the packing group II performance level |

### Section 15 Regulatory Information

> International Chemical Inventory



| Component                   | EINECS | TSCA | DSL | IECSC | NZIoC | PICCS | KECI | AICS | ENCS |
|-----------------------------|--------|------|-----|-------|-------|-------|------|------|------|
| Lithium Iron Phosphate      | ×      | ×    | ×   | ×     | ×     | ×     | ×    | ×    | ×    |
| Graphite                    | ✓      | ✓    | ✓   | ✓     | ✓     | ✓     | ✓    | ✓    | ×    |
| Copper                      | ✓      | ✓    | ✓   | ✓     | ✓     | ✓     | ✓    | ✓    | ×    |
| Aluminium                   | ✓      | ✓    | ✓   | ✓     | ✓     | ✓     | ✓    | ✓    | ×    |
| Poly(vinylidene difluoride) | ×      | ✓    | ✓   | ✓     | ✓     | ✓     | ✓    | ✓    | ✓    |
| Carbon black                | ✓      | ✓    | ✓   | ✓     | ✓     | ✓     | ✓    | ✓    | ×    |
| Polyacrylic acid            | ✓      | ✓    | ✓   | ✓     | ✓     | ✓     | ×    | ✓    | ✓    |
| Lithium hexafluorophosphate | ✓      | ✓    | ×   | ✓     | ×     | ✓     | ✓    | ✓    | ×    |
| Nickel                      | ✓      | ✓    | ✓   | ✓     | ✓     | ✓     | ✓    | ✓    | ×    |

【EINECS】 European Inventory of Existing Commercial Chemical Substances.

【TSCA】 United States Toxic Substances Control Act Inventory.

【DSL】 Canadian Domestic Substances List.

【IECSC】 China Inventory of Existing Chemical Substances.

【NZIoC】 New Zealand Inventory of Chemicals.

【PICCS】 Philippines Inventory of Chemicals and Chemical Substances.

【KECI】 Existing and Evaluated Chemical Substances.

【AICS】 Australia Inventory of Chemical Substances.

【ENCS】 Existing And New Chemical Substances.

#### Note

"✓" Indicates that the substance included in the regulations

"×" That no data or included in the regulations

## Section 16 Additional Information

**Creation Date** 2020/08/20

**Revision Date** 2020/08/20

**Reason for Revision** -

### > Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 8th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user' s reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.