

# Lithium Iron Phosphate Battery

Version 3.0

Issue date: 14/04/2018

## 1. PRODUCT AND COMPANY IDENTIFICATION COMPANY IDENTIFICATION

**Product identifier:**

|               |   |
|---------------|---|
| Product Form: | Article   |
| Product name: | FLP Series - Lithium-Iron Phosphate (LiFePO <sub>4</sub> ) batteries  |
| Models:       | FLTK01(24Wh) - FLTZ5S(20.5Wh) - FLTZ7S(25.6Wh) - FLTX7L(30.7Wh)<br>FLT9B(38.4Wh) - FLTX9(38.4Wh) - FLTZ10S(51.2Wh) - FLT12B(64Wh)<br>FLTX12(44.8Wh) - FLTX14H(51.2Wh) - FLTZ14S(64Wh)<br>FLTX20H(89.6Wh) - FLTX20HL(89.6Wh) |

**Relevant identified uses of the substance and uses advised against:**

|                       |  |
|-----------------------|--|
| Identified uses:      | Motorcycle and power sport starter battery |
| Uses advised against: | Not available.                             |

**Details of the supplier of the safety data sheet:**

|            |   |
|------------|---|
| Supplier:  | <b>FULBAT S.a.s</b>   |
| Address:   | 23 bis rue Edouard Nieuport<br><b>92150 Suresnes</b><br><b>France</b> |
| Telephone: | (France) +33 1 83 62<br>45 55   |

**Emergency telephone Number:**

|                                |                     |
|--------------------------------|---------------------|
| CHEMTREC (US, Canada & Mexico) | 0086-1-800-424-9300 |
| CHEMTREC (International)       | 0086-1-703-527-3887 |

Available outside office hours? YES

☐

NO

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## 2. HAZARDS IDENTIFICATION

For the battery cell, chemical materials are stored in a hermetically sealed Aluminum laminated case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage. This product meets the definition of an "article" and is not subject to the hazards normally associated with the individual components when used as intended.

However, this Safety Data Sheet (SDS) contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product. Always be aware of the risk of fire, explosion or burns. Do not short circuit the terminals with any other metals. Do not disassemble or modify the battery. Do not solder a battery directly. Keep away from fire or open flame.

### 3.COMPOSITION / INFORMATION ON INGREDIENTS

**IMPORTANT NOTE:** The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances.

| Component                        | CAS No.    | Weight |
|----------------------------------|------------|--------|
| Lithium Iron Phosphate           | 15365-14-7 | 32.5%  |
| Polyvinylidene Fluoride (PVDF)   | 24937-79-9 | 2.60%  |
| Aluminum (Al)                    | 7429-90-5  | 8.10%  |
| Graphite                         | 7782-42-5  | 16.45% |
| Styrene-Butadiene Rubber (SBR)   | 9003-55-8  | 0.45%  |
| Carboxymethyl cellulose          | 9000-11-7  | 0.35%  |
| Copper (Cu)                      | 7440-50-8  | 15.60% |
| Lithium Hexafluorophosphate      | 21324-40-3 | 16.45% |
| Polyethylene                     | 9002-88-4  | 6.75%  |
| Ethylene-Propylene-Diene Monomer | 24937-16-4 | 0.75%  |

**Weight % listed is based on approximate percent of the average weight of the battery**

### 4. FIRST-AID MEASURES

#### Spilled internal cell materials

Inhalation:

Make the victim blow his/her nose, gargle. Seek medical attention if necessary.

Skin contact:

Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.

Eye contact:

Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes.

Seek medical attention immediately.

#### A battery cell and spilled internal cell materials

Ingestion:

Make the victim vomit. When it is impossible or the feeling is not well after vomiting, seek medical attention.

### 5.FIRE-FIGHTING MEASURE

Suitable extinguishing media: Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam

Specific hazards: Corrosive gas may be emitted during fire.

Specific methods of firefighting: When the battery burns with other combustibles simultaneously, take fire extinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.

Special protective equipment for firefighters:

Respiratory protection: Respiratory equipment of a gas cylinder style or protection-against-dust mask.

Hand protection: Protective gloves

Eye protection: Goggle or protective glasses designed to protect against liquid splashes

Skin and body protection: Protective cloth

## 6. ACCIDENTAL RELEASE MEASURES

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings.

Precautions for human body:

Remove spilled materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as much as possible. Moreover, avoid touching as much as possible.

Environmental precautions: Do not throw out into the environment.

Method of cleaning up:

The spilled solids are put into a container. The leaked place is wiped off with dry cloth.

Prevention of secondary hazards:

Avoid re-scattering. Do not bring the collected materials close to fire.

## 7. HANDLING AND STORAGE

### Handling Technical measures

Prevention of user exposure: Not necessary under normal use.

Prevention of fire and explosion: Not necessary under normal use.

Precaution for safe handling: Do not damage or remove the external tube.

Specific safe handling advice:

Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water or seawater.

Do not expose to strong oxidizers. Do not give a strong mechanical shock or fling. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charger or charge according to the conditions specified by FULBAT.

### Storage

#### Technical measures

Storage conditions (suitable, to be avoid): Avoid direct sunlight, high temperature, high humidity. Store in cool place (temperature: -20 ~ 35 degree C, humidity: 45 ~ 85%).

Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids

Packing material (recommended, not suitable): Insulative and tearproof materials are recommended.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Not established

Appropriate engineering controls

Under normal conditions (during discharge) release of ingredients does not occur. ACGIH: American Conference of Governmental Industrial Hygienists, Inc.

TLV-TWA: Threshold Limit Value-Time Weighted Average concentration

BEI: Biological Exposure Indices

Personal protective equipment

Respiratory protection: Respirator with air cylinder, dust mask

Protection: Protective gloves

Eye protection: Goggles or protective glasses designed to protect against liquid splashes

Skin and body protection: Working clothes with long sleeve and long trousers

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state: Solid

Form: Prismatic

Color: Metallic color (without tube)

Odor: No odor

pH: NA

Specific temperatures/temperature ranges at which changes in physical state occur:

There is no useful information for the product as a mixture.

Flash point: NA

Explosion properties: NA

Density: NA

Solubility, with indication of the solvent(s): Insoluble in water

## 10. STABILITY AND REACTIVITY

Stability: Stable under normal use

Hazardous reactions occurring under specific conditions

Conditions to avoid: Heat above 70°C or incinerate. Deform, mutilate, crush, disassemble, overcharge, short circuit, expose over a long period to humid conditions. Do not put it under sunlight and high humidity directly.

Materials to avoid: Conductive materials, water, seawater, strong oxidizers and strong acids.

Hazardous decomposition products: Acidic or harmful gas is emitted during fire.

## 11. TOXICOLOGICAL INFORMATION

There is no available data on the product itself. The information of the internal cell materials is as follows.

### **Lithium Iron Phosphate– LiFePO<sub>4</sub>**

Acute toxicity: No applicable data.

Local effects: Unknown.

Sensitization: The nervous system of respiratory organs may be stimulated sensitively.

Chronic toxicity/Long term toxicity: No applicable data.

Skin causticity: Although it is very rare, the rash of the skin and allergic erythema may result.

### **Aluminum**

Local effects: Aluminum itself has no toxicity. When it goes into a wound, dermatitis may be caused.

Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or fume, it is possible to cause a lung damage (aluminum lungs).

### **Graphite**

Acute toxicity: Unknown.

Local effects: When it goes into one's eyes, it stimulates one's eyes; conjunctivitis, thickening of corneal epithelium or edematous inflammation palpebra may be caused.

Chronic toxicity/Long term toxicity: Long-term inhalation may become a cause of a lung disease or a

tracheal disease.

Carcinogenicity: Graphite is not recognized as a cause of cancer by research organizations and natural toxic substance research organizations of cancer.

#### **Copper**

Acute toxicity: 60-100mg sized coarse particulate causes a gastrointestinal disturbance with nausea and inflammation. TDLo, hypodermic - Rabbit 375mg/kg

Local effects: Coarse particulate stimulates a nose and a tracheal. When it goes into one's eyes, the symptom of the reddening and the pain is caused.

Sensitization: Sensitization of the skin may be caused by long-term or repetitive contact.

- Reproductive effects: TDLo, oral - Rat 152mg/kg

#### **Organic Electrolyte**

- Acute toxicity: LD50, oral - Rat 2,000mg/kg or more

- Local effects: Unknown.

- Skin irritation study: Rabbit – Mild

- eye irritation study: Rabbit - Very severe

## **12. ECOLOGICAL INFORMATION**

- Persistence/degradability: do not bury or throw out into the environment.

## **13. DISPOSAL CONSIDERATIONS**

- 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.

## **14. TRANSPORT INFORMATION**

### **SHIPPING BY SEA or BY ROAD (≤100Wh)**

**14.1 UN Number :** 3480

**14.2 UN Proper shipping name :** LITHIUM ION BATTERIES

**14.3 Transport Hazard class :** -

**14.4 Packing group :** -

**14.5 Environmental hazards :** No

**14.6 ADR, IMDG Transport:** SP188

### **SHIPPING BY SEA or BY ROAD (>100Wh)**

**14.1 UN Number :** 3480

**14.2 UN Proper shipping name :** LITHIUM ION BATTERIES

**14.3 Transport Hazard class :** 9

**14.4 Packing group :** II

**14.5 Environmental hazards :** No

**14.6 IMDG Transport :** P903

### **SHIPPING BY AIR**

**14.1 UN Number :** 3480

**14.2 UN Proper shipping name :** LITHIUM ION BATTERIES

**14.3 Transport Hazard class :** 9

**14.4 Packing group :** II

**14.5 Environmental hazards :** No

**14.6 IATA Transport :** PI 965-Section IB ( $\leq 100\text{Wh}$ ) or PI 965-Section IA ( $>100\text{Wh}$ )

## 15. REGULATORY INFORMATION

«Classification, Labeling and Packaging Regulation»

«REACH (EC)1907/2006»

«Dangerous Goods Regulation»

«Recommendations on Transport of Dangerous Goods Model Regulations»

«International Maritime Dangerous Goods»

«Technical Instructions for the Safe Transport of Dangerous Goods»

«Classification and code of dangerous goods»

«Occupational Safety and Health Act» (OSHA)

«Toxic Substances Control Act» (TSCA)

«Consumer Product Safety Act» (CPSA)

«Federal Environmental Pollution Control Act» (FEPCA)

«The Oil Pollution Act» (OPA)

«Resource Conservation and Recovery Act» (RCRA)

«Safety Drinking Water Act» (CWA)

«Code of Federal Regulations» (CFR)

In accordance with all Federal, State and local laws

## 16. OTHER INFORMATION

- The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.

- This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

### - Reference

Chemical substances information: Japan Advanced Information center of Safety and Health  
International Chemical Safety Cards (ICSCs):

International Occupational Safety and Health Information Centre (CIS)

2002 TLVs and BEIs: American Conference of Governmental Industrial Hygienists (ACGIH) New  
Dangerous Goods Best Practice 008--in the 51st Edition IATA DGR(2010)(with effect from 01 January 2010)

GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections ISO

11014:2009(E) Safety data sheet for chemical products –Content and order of sections IMDG

Code – 2008 Edition: International Maritime Organization (IMO)

RTECS(CD-ROM)

MSDS of raw materials prepared by the manufactures First

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Prepared and approved by FULBAT S.a.s