广 州 丰 江 电 池 新 技 术 股 份 有 限 公 司
GUANGZHOU FULLRIVER BATTERY NEW TECHNOLOGY CO.,LTD
Tel: 020-84821680 Fax: 020-84826301 http://www.fentbattery.com

Material Safety Data Sheet

1. Product & Company Identification:

Product	Lithium Iron Phosphate battery
Manufacturer:	Guangzhou Fullriver Battery New Technology Co., Ltd.
Applicable models/sizes:	All LiFePO4 type square and cylindrical batteries
Address:	No.22, Nandidong Road, Shiqiaozhen, Panyu, Guangzhou,China
Telephone:	86-20-84821680
Fax:	86-20-84826301

2. Composition /Information on Ingredients:

Important note: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
Graphite **(CAS# 7782-42-5)**	5mg/m3 TWA (respirable fraction) 15mg/m3 TWA(total dust)	2mg/m3 TWA (respirable fraction)	10~20
Lithium Iron Phosphate	None established	None established	35~50
Lithium Hexafluorophosphate **(CAS# 21324-40-3)**	None established	None established	0~5
Acetylene Black **(CAS# 1333-86-4)**	3.5mg/m3 TWA (as carbon black)	3.5mg/m3 TWA(as carbon black)	0~5
Diethyl Carbonate **(CAS# 105-58-8)**	None established	None established	0-20
Dimethyl Carbonate **(CAS# 616-38-6)**	None established	None established	0~20
Ethyl Methyl Carbonate **(CAS# 623-53-0)**	None established	None established	0~20
Propylene Carbonate **(CAS# 108-32-7)**	None established	None established	0~20
Ethylene Carbonate **(CAS# 96-49-1)**	None established	None established	0~20

3. Hazardous Identification:

Chemical Nature: White color solid
CAS-No/EINECS NO.:N/A
INCI CTFA-Description:Lithium iron phosphate battery series
Ingestion: No effect under routine handling and use.
Inhalation: No effect under routine handling and use.
Skin contact: No effect under routine handling and use.
Eye contact: No effect under routine handling and use.
Skin absorption: No effect under routine handling and use.
Reported as carcinogen: Not applicable

4. First Aid Measures:

Under normal conditions of use, the battery is hermetically sealed.

Ingestion:

Swallowing a battery can be harmful.

Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.

Inhalation:

Contents of an open battery can cause respiratory irritation. Inhalation of vapors may cause irritation of the upper respiratory tract and lungs. Provide fresh air and seek medical attention.

Skin Absorption:

Ethylene carbonate, diethyl carbonate and dimethyl carbonate may be absorbed through the skin causing localized inflammation.

Skin Contact:

Contents of an open battery can cause skin irritation and/or chemical burns. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

Eye Contact:

Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek

medical attention.

Note:

Acetylene black and cobalt compounds are listed as possible carcinogens by the International Agency for Research on Cancer (IARC).

5. Fire Fighting Measures

If fire or explosion occurs when batteries are on charge, shut off power to charger.

In case of fire where lithium iron phosphate batteries are present, flood the area with water. If any batteries are burning, water may not extinguish them, but will cool the adjacent batteries and control the spread of fire. CO2, dry chemical, and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium iron phosphate batteries. Burning batteries will burn themselves out. Virtually all fires involving lithium iron phosphate batteries can be controlled with water. When water is used, however, hydrogen gas may be evolved which can form an explosive mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

Fire fighters should wear self-contained breathing apparatus. Burning lithium iron phosphate batteries can produce toxic fumes including HF, oxides of carbon, aluminum, lithium, copper, and cobalt. Volatile phosphorus pent fluoride may form at a temperature above 230º Fahrenheit.

6. Accidental Release Measures

On hand: 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 & Storage

Handling: Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include

jumbled batteries in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of batteries in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery. Should an individual cell within a battery become ruptured, do not allow contact with water.

Storage: The lithium iron phosphate battery should be between 25% and 75% of full charge when stored for a long period of time. Stored in a cool, dry and well ventilated area. Elevated temperatures can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames.

8. Exposure Control/Personal Protection

Engineering Control:

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

Personal Protection:

Respiratory Protection: Not necessary under normal conditions.

Eye/Face Protection:

Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

Gloves:

Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.

Foot Protection:

Steel toed shoes recommended for large container handling.

9. Physical/Chemical Properties

Physical state	Solid	**Solubility in water:**	Not Applicable
Color	White	**Vapor pressure**	Not Applicable
Odor	No	**Explosion limit**	Not Applicable
Flash point	Not Applicable	**Auto flammability**	Not Applicable
Solubility in ethanol soluble	Not Applicable	**Melting Point**	Not Applicable
Boiling Point	Not Applicable	**Freezing Point**	Not Applicable

10. Stability & Reactivity

Stability: Good stability at standard temperature.

Reactivity: None

Avoid contact with water and acids. Hazardous decomposition products: If Al package foil of battery is damaged, the battery should avoid to contact strong oxidizer, acids and
high temperature, and the electrolyte will be formed HF.

11. Toxicological information

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

12. Ecological information

If the battery is scrapped, it should be selected and disposed by professional company.

13. Disposal considerations

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

14. Transport Information

The battery models listed have aggregate equivalent lithium content below the 8g. And shipment contains no item listed under IATA DGR Special Provision A154 and meets all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3.

No	ITEMS	RESULT	REMARKS
1	Altitude simulation	Pass	Test 1 to 5 must be conducted in sequence on the same cell or battery
2	Thermal test	Pass	
3	Vibration	Pass	
4	Shock	Pass	
5	External short circuit	Pass	
6	Impact	Pass	
7	Overcharge	Pass	Only battery do need this test
8	Forced Discharge	Pass	

The product is not classified as dangerous under the current edition of the IATA

dangerous goods regulations and according A45 all applicable Carriers. The product is safe for air transportation and not regulated by IATA DGR.

15. Regulatory Information

See ACGIH exposure limits information as noted in Section3.
US: This MSDS meets/exceeds OSHA requirements.
International: This MSDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-1993.

Date: November 25, 2010

Authorized Person: 曾石华

Signature: _____