

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

PRODUCT NAME: Lithium Ion Battery, Phosphate-Based

MODEL/SIZE: ST-LFP4500 9.6V, 4.5AH, 43.2Wh

MANUFACTURER: Shenzhen Smart Team Holdings Limited

ADDRESS: Xutai Industrial Zone, Long Wo Road, Long Tian Village, Keng Zi Town, Longgang District, Shenzhen , Guangdong , China

TELEPHONE: +86-755-8411 0784

24-hour Emergency: (852) 3428 6032

2. COMPOSITION/INFORMATION ON INGREDIENTS

As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use.

	CAS #	Approximate percent of total weight
LiFePO ₄	349632-76-4	33%
Carbon(Graphite)	7440-11-0	18%
Electrolyte(LiPF ₆ /EC/DMC/EMC)	21324-40-3/96-49-1/616-38-6/623-53-0	13%
Aluminum	7429-90-5	4%
Copper	7440-50-8	8%
Hexafluoropropylene-Vinylidene-Fluoride Copolymer	9011-17-0	3%
PP/PE/PET		2%
Steel	7439-89-6	19%

3. HAZARDS/HEALTH IDENTIFICATION

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

Not dangerous with normal use. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Appearance, color and odor: Solid object with no odor

Primary Route(s) of Exposure: These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and Skin contact.

Potential Health Effects: In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.

Inhalation: Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.

Ingestion: Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

Skin: Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

Eye: Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eyes.

Medical Conditions Generally Aggravated by Exposure: N/A

4. FIRST-AID MEASURES

Inhalation: If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh



air. Obtain medical advice.

Skin Contact: If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

Eye contact: If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.

Ingestion: If ingestion of contents of an open battery occurs, Never give anything by mouth if victim is rapidly losing conscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care --facility.

5. FIRE-FIGHTING AND EXPLOSION HAZARD DATA

Flammable Properties: In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.

Explosion Data:

Sensitivity to mechanical impact: This may result in rupture in extreme cases.

Sensitivity to static Discharge: N/A

Extinguishing Media: Carbon dioxide (CO₂) 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 CO₂ fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO₂ extinguishing agent.

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

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment.

Environmental Precautions: Prevent material from contaminating soil and from entering sewers or waterways.

Methods for containment: Stop the leak if safe to do so. contain the spilled liquid with dry sand or earth. clean up spills immediately.

Methods for clean-up: Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of .Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

7. HANDLING & STORAGE

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.

8. PERSONAL PROTECTION

Engineering Controls: Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fume and vapor.

Personal protection:

Respiration protection: Self-contained breathing apparatus(not necessary under normal conditions)

Eye protection: Not necessary under normal conditions. Wear safety glasses if handling an open or leaking battery.

Skin protection: Not necessary under normal conditions. Wear neoprene or natural rubber gloves if handling an open or leaking battery.

Hygiene Measures: Do not eat, drink or smoke in work areas. Maintain good housekeeping.

9. PHYSICAL & CHEMICAL PROPERTIES

Physical State: Solid

Appearance: Battery

Boiling Point @ 760 mm Hg (°C): N/A

Vapor Pressure (mm Hg @ 25°C): N/A

Vapor Density (Air = 1): N/A

Relative Density (water=1): 1.12 g/cc

Percent Volatile by Volume (%): N/A

Evaporation Rate (n-Butyl Acetate = 1): N/A

Solubility in Water (% by Weight): Insoluble

PH: N/A

Water/Oil distribution coefficient: N/A

Odor Type: odorless

Melting Point: N/A

Viscosity: N/A

Oxidizing Properties: N/A

Auto Ignition Temperature(°C): N/A

Flash Point and Method(°C): N/A

Flammability Limits(%): N/A

10. STABILITY & REACTIVITY

Stable or unstable: Stable

Incompatibility (Materials to avoid) : NA

Hazardous decomposition products: This material may release toxic fumes if burned or exposed to fire.

Condition to Avoid: Avoid exposing the battery to fire or high temperature. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.

Watt Hour: 16Wh marked in the label.

Possibility of Hazardous Reactions: Not available

11. TOXICOLOGICAL INFORMATION

Irritation: Risk of irritation occurs only if the cell inside mechanically, thermally or electrically abused to the point of compromising the enclosure and safety circuitry. If this occurs, irritation to the skin, eyes and respiratory tract may occur.

Sensitization: N/A

Neurological Effects: N/A

Teratogenicity: N/A

Reproductive Toxicity: N/A

Mutagenicity (Genetic Effects): N/A

Toxicologically Synergistic Materials: N/A



12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATION

Battery recycling is encouraged. Do not dump into any sewers, on the ground or into any body of water. Store material for disposal.

14. TRANSPORT CONSIDERATION

UN Number	
IATA	UN3481
IMDG	UN3481
Model Regulation	UN3481
UN Proper shipping name	
IATA	Lithium Ion Batteries
IMDG	Lithium Ion Batteries
Model Regulation	Lithium Ion Batteries
Transport hazard class(es)	
IATA	N/A
IMDG	N/A
Model Regulation	N/A
Packing group	
IATA	N/A
IMDG	N/A
Model Regulation	N/A
Environmental hazards	
Marine pollutant:	No
Special precautions for user	Not applicable.

Transport information : The Lithium-ion Polymer Battery **ST-LFP4500 9.6V, 4.5AH, 43.2Wh**

according to Packing Instruction 967 Section II of IATA DGR 61st Edition for transportation, or the special provision 188 of IMDG , or the 《 Recommendations on the Transport of Dangerous Goods Model Regulations》 .

(1) The goods are packaged according to the Package instruction 967-II of DGR,

Be applicable to transport by air, be shipped by Passenger and Cargo Aircraft. Each package containing more than four cells or more than two batteries installed in equipment must be labelled “Lithium battery handling label”

(2) The goods are packaged according to the special provision 188 of IMDG, the goods are not subject to IMDG By Sea.

Note: Batteries weight in the package < 5Kg (excluding weight of equipment).

Transport Fashion: By air, by sea, by railway, by road.

15. REGULATORY INFORMATION

None



16. OTHER INFORMATION

The information contained herein is furnished without warranty of any kind. Users should consider this data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

