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# SAFETY DATA SHEET

## 1. IDENTIFICATION

**Product name:** Lithium Iron Phosphate(LiFePO4)

**Applicable Model/Size:** LFP-Max LiFePO4 5000 18S 59.4v Battery Pack

**Company name:** Austin Else LLC, DBA MaxAmps

**4019 E Central Ave, Spokane, WA 99217, 509-473-9883**

## 2. HAZARD(S) IDENTIFICATION

Lithium Iron Phosphate batteries described in this MSDS data sheet are hermetically sealed and designed to withstand temperatures and pressures encountered during normal use. Under normal conditions

of use, there is no physical danger of ignition, explosion or chemical danger of hazardous materials leakage. The materials contained in this battery may only represent a hazard if the integrity of the battery is compromised or if the battery is mechanically, thermally or electrically abused.

**Caution:** Do not open or disassemble the batteries. Do not expose the batteries to fire or open flame. Do not mix batteries of varying sizes, chemistries, or types. Do not short circuit, puncture, incinerate, crush, over-charge, over discharge, or expose the batteries to temperatures above the declared limit.

**Potential Human Health Effects:**

Electrolyte may irritate skin and eyes. In the event of a battery rupture, electrolyte fumes/gases can cause serious damage to the eye and can cause sensitization and irritation to the respiratory tract.



### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS No	Concentration	
Lithium Iron Phosphate (LiFePO4)	15365-14-7	40%	
Carbon, as Graphite	7440-44-0	30%	
Aluminum metal	9003-07-0	5%	
Copper metal	24937-79-9	5%	
Electrolyte:		20%	
Ethyl methyl carbonate	623-53-0		
Lithium hexafluorophosphate	21324-40-3		
Ethylene carbonate	96-49-1		
Dimethyl carbonate	616-38-6		

### 4. FIRST-AID MEASURES

**General:** In an event of battery rupture, evacuate personnel from the contaminated area.

**Eye contact:** Flush with plenty of water for at least 15 minutes (eyelids held open). Seek medical attention immediately.

**Inhalation:** Leave area immediately. Seek medical attention immediately.

**Skin contact:** Remove contaminated clothing. Wash the area with soap and plenty of water immediately and for at least 15 minutes. Seek medical attention.

**Ingestion:** Drink plenty of water and induce vomiting. Seek medical attention immediately.



## 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Plenty of water, Carbon dioxide gas, Chemical powder, fire extinguishing medium and foam.

**Fire Fighting Procedures:** Use a positive pressure self-contained breathing apparatus if batteries are involved in fire. Full protective clothing is necessary. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.

**Hazardous Combustion products:** Fire, excessive heat and/or over voltage conditions may produce hazardous decomposition products (i.e. electrolyte fumes and hazardous organic vapors). Vapors may be heavier than air and may travel along the ground or be moved by ventilation to an ignition source.

## 6. ACCIDENTAL RELEASE MEASURES

Remove all personnel from the area immediately. Wear protective gloves and protective glasses. The spilled solids are to be put into a sealed plastic bag or container and disposed off properly (after cooling if necessary). Any leaked electrolyte should be wiped off with dry cloth and disposed off properly (section 13). Do not inhale the gas and avoid skin contact. Do not bring collected materials close to fire.

## 7. HANDLING AND STORAGE

**Handling:** Do not open or disassemble the batteries. Do not expose the batteries to fire or store near open flame. Do not mix batteries of varying sizes or chemistries. Do not connect the positive and negative battery terminals with conductive material or throw into fire. Keep the batteries in plastic or non-conductive trays. Do not expose batteries to direct sun light for a prolonged time.

**Storage:** Batteries should be stored in a well ventilated, cool area with sufficient clearance between batteries and walls. Store in cool, dry place: temperature: 20-45C, humidity: 45-85%

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

Packing material: Insulating and tear-proof materials are recommended.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering controls:** No engineering controls are required for normal operation. In case of cell leakage, increase the ventilation and use self contained full-face respiratory equipment.

**Personal Protective Equipment:** Not required during normal use of the battery but, in the event of a ruptured battery or fire; Eye & Respiratory protection: When adequate ventilation is not available, wear self-contained full-face respiratory equipment. Hand Protection: Chemical protective gloves. Skin and body protection: Chemical protective clothing.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid

Form: Prismatic

Color: Laminated Aluminum Film

Smell: Odorless

pH: N/A

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

Flash point: N/A

Explosion properties: N/A

Density: N/A

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

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions. Hazardous reactions may occur under specific conditions.

**Reactivity:** When a battery is exposed to high temperatures, crushes, deformation, and external short circuit may result in venting harmful gases and volatile organics. In the event of rupture, hydrogen fluoride gas is produced in reaction with water.

## 11. TOXICOLOGICAL INFORMATION

Toxicological information: No information available.

## 12. ECOLOGICAL INFORMATION

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

## 13. DISPOSAL CONSIDERATIONS

Batteries should be discharged fully prior to disposal. The battery terminals should be capped to prevent a short circuit. Dispose the batteries in accordance with applicable local laws. Lithium Iron Phosphate batteries may be subject to federal, state or local regulations.



## 14. TRANSPORTATION INFORMATION

Lithium Iron Phosphate batteries are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states: "Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (For example, by the effective insulation of exposed terminals). The only requirements for shipping these batteries by ICAO and IATA is Special Provision A123 which states: "An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transportation." The international Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special Provision 304 which says : Batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the provision of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc-carbon, silver oxide, nickel metal hydride, nickel-cadmium batteries, and Lithium Iron Phosphate which are non-dangerous goods. Such batteries have been packed in inner packaging in such a manner as to effectively prevent short circuit and movement that could lead to short circuit.

## 15. REGULATORY INFORMATION

Any special requirements be according to the local regulatory agency.

## 15. OTHER INFORMATION

Issued and Revised Date: 1-January-2023

The information contained in this material data sheet has been compiled from sources considered to be dependable and is to the best of the knowledge accurate and reliable as of the date of compilation. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information obtained herein. This information relates to the specific materials designated and may not be valid for such materials used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his particular use.