Safety Data Sheet

Issue Date: 16-Jun-2014 **Revision Date:** 09-March-2022 **Version** 1

1. IDENTIFICATION

Product Identifier

Product Name Lithium Iron Phosphate (LiFePO4) Rechargeable Batteries

Other Means of Identification

SDS # POWER-007

UN/ID No UN3480

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Battery

Details of the Supplier of the Safety Data Sheet

Manufacturer Address
Power-Sonic Corporation
7550 Panasonic Way
San Diego, CA 92154

Emergency Telephone Number

Company Phone Number 1-619-661-2020
Emergency Telephone (24 hr) INFOTRAC 1-800-535-5053 (domestic), 1-352-323-3500 (International)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a Lithium Iron Phosphate Battery with certified compliance under the UN Manual of Tests and Criteria, Part III, sub-section 38.3. The information below is for repeated and prolonged contact in an occupational setting. It is not likely to apply to normal product use. 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 (+) and (-) 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.

Appearance Battery **Physical State** Solid **Odor** None

Classification

Based on 29 CFR 1910.1200, these products meet the definition of an "article" and they are not subject to the hazards normally associated with the individual components when used as intended.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Lithium Iron Phosphate	15365-14-7	23-33
Carbon	7440-44-0	12-17
Organic Solvents	Proprietary	5-10
Acrylonitrile butadiene-styrene resin	Proprietary	5

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

First Aid Measures

General Advice	Provide this SDS to medical personnel for treatment.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes.
Inhalation	Remove to fresh air.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most Important Symptoms and Effects

Symptoms	Based on physical state of the product, accidental exposure is unlikely.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Notes to Physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Small Fire	Carbon Dioxide, Dry Chemical, Foam, Water Fog.
Large Fire	Move containers from fire area if you can do it without risk. Carbon Dioxide, Dry Chemical, Foam, Water Fog.
Unsuitable Extinguishing Media	Not determined.

Specific Hazards Arising from the Chemical
Exposing battery or cell to excessive heat, fire, or over voltage condition may cause flame or leak potentially hazardous organic vapors and produce hazardous decomposition products. Damaged or opened cells and batteries can result in rapid heating and the release of flammable vapors.

Hazardous Combustion Products: Fire will produce irritating, corrosive and/or toxic gases.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Use personal protective equipment as required.
Other Information	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
For Emergency Responders	Keep unnecessary and unprotected personnel from entering.
Environmental Precautions	See Section 12 for additional Ecological Information.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Do not release runoff from fire control methods to sewers or waterways.

Methods for Clean Up Ground and bond containers when transferring material. Sweep up and shovel into suitable containers for disposal. For waste disposal, see section 13 of the SDS.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling CHARGING/DISCHARGING: Cells and batteries are designed to be rechargeable. However, abnormal charging may cause batteries to flame, and abnormal discharging may result in damaging batteries. Use approved chargers and procedure only.
BATTERY DISASSEMBLE: Do not disassemble a battery in any case. If a battery was unintentionally crushed or damaged, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of vapors that may be omitted.
BATTERY SHORT CIRCUIT: The battery is an energy source that converts electric power into the chemical form of energy. Therefore, short circuiting the battery may cause the chemical reaction to occur too intensively and provide an ignition source.
MIXED BATTERIES AND TYPES: Do not assemble batteries with series or parallel connection. The use of old and new cells of varying capacity or different electrochemical battery systems should be avoided.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions Fix positive and negative terminals properly to avoid short circuit. Store in cold and well-ventilated area preventing exposure from direct sunlight and other sources of heat. Elevated temperatures can result in reduced battery service life.

Incompatible Materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product presents no health hazards to the user when used according to label directions for its intended purposes

Appropriate Engineering Controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits.

Individual Protection Measures, Such as Personal Protective Equipment

Eye/Face Protection Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Solid		
Appearance	Battery	**Odor**	None
Color	Typical	**Odor Threshold**	No odor

Property	Values	Remarks • Method
pH	Not determined	
Melting Point/Freezing Point	Not determined	
Boiling Point/Boiling Range	Not determined	
Flash Point	Not determined	
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Not determined	
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not determined	
Vapor Density	Not determined	
Specific Gravity	Not determined	
Water Solubility	Not determined	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

10. STABILITY AND REACTIVITY

Reactivity
If battery assembly is damaged, contents may release flammable vapors.

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
If battery assembly is damaged, contents may release flammable vapors.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid
Keep away from heat, sparks and open flame.

Incompatible Materials
None known based on information supplied.

Hazardous Decomposition Products
Fire will produce irritating, corrosive and/or toxic gases.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information Under normal conditions of intended use, this material does not pose a risk to health

Eye Contact Avoid contact with eyes.

Skin Contact Avoid contact with skin.

Inhalation Avoid breathing vapors or mists.

Ingestion Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Carbon 7440-44-0	> 10000 mg/kg (Rat)	-	-

Information on Physical, Chemical and Toxicological Effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure

Carcinogenicity Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical Measures of Toxicity
Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence/Degradability
Not determined.

Bioaccumulation
Not determined.

Mobility
Not determined

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Lithium iron phosphate as a battery chemistry uses no heavy metals during the manufacturing and is to be considered non-toxic and is approved for landfill disposal. ALWAYS dispose/recycle batteries in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Power-Sonic PSL series batteries are designed to comply with all applicable shipping regulations as prescribed by industry and legal standards which includes compliance with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods Regulations and applicable U.S. DOT regulations for the safe transport of lithium-ion batteries and the International Maritime Dangerous Goods Code. This battery has passed the UN Manual of Tests and Criteria Part III Subsection 38.3, which is required by all of the directives listed above.

International shipments of PSL series lithium phosphate batteries are classified as Class 9, UN3480, Packing Group II, by the International Civil Aviation Organization (ICAO) and the International Maritime Dangerous Goods (IMDG) Code. Packaging, markings and documentation requirements are defined in the International Air Transport Association (IATA) Dangerous Goods Regulations (DGR) Packing Instructions 965 and Packing Instruction P903 of the IMDG Code.

In the US, shipments of lithium iron phosphate batteries are classified as Class 9, UN3480, Packing Group II, by the U.S. Hazardous Materials Regulations (HMR). Packaging, markings and documentation requirements are defined in Title 49 of the Code of Federal Regulations (CFR), Section 173.185. of the U.S. HMR.

(A) This consignment is packed in a clean, good and strong outer packaging.

(B) This consignment does not contain any recalled and/or defective batteries.

(C) This consignment has been packed in compliance with Section II of PI965.

(D) Handle with care, flammability hazard exists if the package is damaged.

(E) If package is damaged, batteries must be protected so as to prevent short circuit. Batteries are completely enclosed by inner packaging so as to protect from short circuit.

For additional details on how to comply with federal hazardous materials regulations see the link below.

www.fmcsa.dot.gov/regulations/hazardous-materials/how-comply-federal-hazardous-materials-regulations

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Lithium Iron Phosphate		X			Present					
Carbon	Present	X		Present			X	Present	X	X
Organic Solvents	Present	X		Present			X	Present	X	X
Acrylonitrile butadiene-styrene resin	Present	X		Present			X	Present	X	X

Legend:

TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*

DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*

EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*

ENCS *- Japan Existing and New Chemical Substances*

IECSC *- China Inventory of Existing Chemical Substances*

KECL *- Korean Existing and Evaluated Chemical Substances*

PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

AICS *- Australian Inventory of Chemical Substances*

US Federal Regulations

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 313

Not determined

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	Not determined	Not determined	Not determined	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

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Revision Note: Hazardous materials regulations weblink (sec.14)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Rev.1.3