MATERIAL SAFETY DATA SHEET

PULSE IPT LITHIUM IRON PHOSPHATE BATTERIES

FULL SPECTRUM POWER, LLC | 350 CALVERT AVE, ALEXANDRIA, VA. 22314, UNITED STATES OF AMERICA | +1 703 481 1045

SECTION 1: PRODUCT AND COMPANY INFORMATION

PRODUCT NAME	Pulse IPT Battery Series (including IPT5.1, IPT1.4T, IPT1.4, IPT1.5T, IPT1.5, IPT1.7T, IPT1.7, IPT1.7S, IPT2.7BT, IPT2.7B, IPT2.7BM, IPT2.9T, IPT2.12, IPT2.12L, IPT2.12S, IPT3.9T, IPT3.9, IPT3.9L, IPT3.10T, IPT3.10, IPT3.10L, IPT3.10S, IPT3.12X, IPT3.12XL, IPT3.12XS, IPT3.14, IPT3.14L, IPT3.14S, IPT3.16, IPT3.16L, IPT3.16S, IPT4.15, IPT4.15L, IPT4.15S, IPT4.20, IPT4.20L, IPT4.20S, and others)
SYNONYMS	Lithium Iron Phosphate Battery, Lightweight Lithium Starter Battery, Pulse Battery, P1, P4T, P4, P5T, P5, P7T, P7, P7S, P7BT, P7B, P7BM, P9BT, P12, P12L, P12S, P9T, P9, P9L, P10T, P10, P.10L, P10S, P12X, P12XL, P12XS, P14, P14L, P14S, P16, P16L, P16S, P15, P15L, P15S, P20, P20L, P20S
MANUFACTURER	Full Spectrum Power, LLC
ADDRESS	350 Calvert Ave Alexandria, VA 22301 United States of America
EMERGENCY PHONE	+1 703 481 1045
CHEMICAL NAME	Lithium Iron Phosphate
CHEMICAL FORMULA	LiFePO4
PRODUCT USE	Powersport/Automotive starter battery, motorsport system power supply battery
PREPARED BY	Full Spectrum Power, LLC

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Under normal use, this battery is not expected to expose users to hazardous materials.

USA

This battery meets the definition of an “article” pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Material Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

CANADA

This battery is not a controlled product under WHMIS. This product meets the definition of a “manufactured article” and is not subject to the regulations of the Hazardous Products Act.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Not dangerous with normal use. The battery should not be disassembled or incinerated. Exposure to the materials contained within the external case or their combustion products could be harmful.

APPEARANCE, COLOR, and ODOR

Solid rectangular object. The batteries are made of black plastic, with terminals, labeling, and a blue button on top. All Pulse IPT battery models will exhibit different sizes, but the general design and appearance are the same. No odor when used properly.

ROUTES OF ENTRY

Risk of exposure will only occur if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised or damaged. If this occurs, exposure to the electrolyte solutions contained within the battery cell may occur by inhalation, eye contact, skin contact and ingestion.

POTENTIAL HEALTH EFFECTS

EYES

Contact between the battery and eye will not cause any harm. Eye contact with electrolyte solutions from a ruptured battery cell can cause severe irritation or chemical burns to the eye.

SKIN

Contact between the battery and skin will not cause any harm. Skin contact with electrolyte solutions from a ruptured battery cell can cause severe skin irritation.

INGESTION

Swallowing of material from a sealed battery is not an expected route of exposure. Swallowing electrolyte solution from a ruptured battery cell will cause severe chemical burns to mouth, esophagus and gastrointestinal system.

INHALATION
Inhalation of material from a sealed battery is not an expected route of exposure. Vapors or mists from electrolyte solutions from a ruptured battery cell may cause respiratory irritation.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
Unknown

SECTION 4: FIRST AID MEASURES

GENERAL ADVICE
Provide this SDS to medical personnel for treatment. In all cases, if irritation persists, seek medical assistance at once.

EYES
Wash affected eye with lukewarm water for at least 30 minutes. Rinse with saline solution if possible. Seek medical attention.

SKIN
Flush immediately with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before re-use. Seek medical attention immediately.

INGESTION
Do not induce vomiting. If the injured is fully conscious: wash out mouth with water, then give 2-4 cups of milk or water. Do not give anything by mouth to an unconscious person. Seek medical attention immediately.

INHALATION
Remove from exposure and move to fresh air immediately. Rinse mouth and nose with water. Do not use mouth-to-mouth resuscitation. If breathing has ceased, apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. Seek medical attention immediately.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
Carbon dioxide, class-D dry chemical powder, sand, and foam are the most effective ways to extinguish a battery fire. Do not use water.

FIRE FIGHTING PROCEDURE
Put on fully protective gear, including self-contained breathing apparatus, goggles, flameproof jacket, pants, and gloves. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action should be taken involving personal risk without suitable training. Approach fire from upwind

to avoid hazardous vapors and toxic decomposition products. Move containers from fire area if this can be done without risk. Prevent run-off from entering streams or drinking water supply. Do not re-enter scene until thoroughly ventilated.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Exposing the battery to excessive heat, fire or excess voltage may cause a leak, fire, hazardous vapors and hazardous decomposition products. Damaged or opened cells or batteries can result in rapid heating, the release of flammable vapors, and combustion.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES

The material contained within the batteries cells is only exposed to the outside environment under tampering, abuse, and/or damage. Using a shovel, cover the damaged battery with sand or vermiculite, place in an approved fireproof container and dispose of in accordance with Section 13.

SECTION 7: HANDLING AND STORAGE

HANDLING

Do not expose battery or cells to extreme temperatures or fire. Do not disassemble, crush or puncture battery.

STORAGE

Insulate positive and negative terminals to avoid accidental short circuit. Store in a cool, dry, and well-ventilated area. Avoid direct sunlight. Excessively hot or cold temperatures can result in reduced battery life. Do not leave battery unattended while charging.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL HYGIENE CONSIDERATIONS

Handle in accordance with good industrial hygiene and safety practice. Do not attempt to eat or otherwise consume this battery. Do not eat, drink or smoke when using this battery.

RESPIRATORY PROTECTION

Not necessary under normal use. In case of battery or cell rupture, use a self-contained full face respiratory mask. Refer to 29 CFR 1910.134 for respiratory protection requirements.

EYE PROTECTION

Not necessary under normal use. Wear safety goggles if handling a ruptured or leaking battery cell. Refer to 29 CFR 1910.133 for eye and face protection regulations.

SKIN PROTECTION

Not necessary under normal use. Wear rubber apron and Viton rubber gloves if handling a ruptured or leaking battery cell. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Solid
APPEARANCE	Battery
pH	Not Applicable
RELATIVE DENSITY	Not Applicable
BOILING POINT	Not Applicable
MELTING POINT	Not Applicable
VISCOSITY	Not Applicable
OXIDIZING PROPERTIES	Not Applicable
FLASH POINT AND METHOD (°C)	Not Applicable
ODOR TYPE	Not Applicable
ODOR THRESHOLD	Not Applicable
EVAPORATIVE RATE (n-Butyl Acetate = 1)	Not Applicable
AUTO IGNITION TEMPERATURE(°C)	Not Applicable
FLAMMABILITY LIMITS (%)	Not Applicable
VAPOR PRESSURE (mm Hg @ 20°C)	Not Applicable
VAPOR DENSITY (Air = 1)	Not Applicable
SOLUBILITY IN WATER	Insoluble
WATER/OIL DISTRIBUTION COEFFICIENT	Not Applicable

SECTION 10: STABILITY AND REACTIVITY

STABILITY
Stable

CONDITIONS TO AVOID
Avoid exposing battery to high temperatures. Do not incinerate, deform, mutilate, drop, crush, pierce, short circuit, modify or disassemble.

MATERIALS TO AVOID
Not Applicable

HAZARDOUS DECOMPOSITION PRODUCTS
Harmful vapors, including metallic oxides, carbon monoxide (CO), carbon dioxide (CO_2), may be released if cells are ruptured or exposed to the outside environment. Some of these vapors may be flammable, and combustion can occur.

POSSIBILITY OF HAZARDOUS REACTIONS
Not available.

SECTION 11: TOXICOLOGICAL INFORMATION

IRRITATION

Risk of irritation only occurs if battery cells are mechanically, thermally or electrically abused and the enclosure is compromised.

NEUROLOGICAL EFFECTS
Not applicable.

SENSITIZATION
Not applicable.

TERATOGENICITY
Not applicable.

REPRODUCTIVE TOXICITY
Not applicable.

MUTAGENICITY (GENETIC EFFECTS)
Not applicable.

TOXICOLOGICALLY SYNERGISTIC MATERIALS
Not available

SECTION 12: ECOLOGICAL INFORMATION

BIOACCUMULATIVE POTENTIAL
Not available.

PERSISTENCE AND DEGRADABILITY
Not available.

MOBILITY
Not available.

ECOTOXICITY
Not available.

OTHER ADVERSE EFFECTS
Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD
Recycling is encouraged. 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. Dispose of in accordance with local, state and federal laws and regulations.

USA

Dispose of in accordance with local, state and federal laws and regulations.

CANADA
Dispose of in accordance with local, state and federal laws and regulations.

EC
Dispose of in accordance with relevant EC Directives.

SECTION 14: TRANSPORT INFORMATION

This product complies 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 iron phosphate batteries.

This product has been tested under the provisions of the UN Manual of Tests and Criteria, Part III, sub-section 38.3 and is classified as a non-dangerous good.

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME	Lithium Ion batteries
HAZARD CLASS	UN3480
ID NUMBER	Not applicable
PACKING GROUP	PI965 Section I
LABEL STATEMENT	See note

WATER TRANSPORTATION

PROPER SHIPPING NAME	Lithium Ion batteries
HAZARD CLASS	UN3480
ID NUMBER	Not applicable
PACKING GROUP	PI965 Section I
LABEL STATEMENT	See note

AIR TRANSPORTATION

PROPER SHIPPING NAME	Lithium Ion batteries
HAZARD CLASS	UN3480
ID NUMBER	Not applicable
PACKING GROUP	PI965 Section I
LABEL STATEMENT	See note

OTHER AGENCIES:

NOTES

Use Class 9 Miscellaneous Dangerous Goods and UN Identification labels for transportation of lithium ion batteries which are assigned Class 9. Refer to relevant transportation documents. Lithium and lithium ion cells and batteries are regulated in the U.S. in accordance with Part 49 of the Code of Federal Regulations, (49 CFR Sections 105-180) of the U.S. Hazardous Materials Regulations.

Lithium ion cell/battery = UN3480 with Packing Instructions 965
Lithium ion cell/battery packed with equipment = UN3481 Packing Instructions PI966
Lithium ion cell/battery contained in equipment = UN3481 Packing Instructions PI967

SECTION 15: REGULATORY INFORMATION

USA

TSCA STATUS All ingredients in the product are listed on the TSCA inventory.

SARA Title III

Sec. 302/304	None
Sec. 311/312	None
Sec. 313	None
CERCLA RQ	None

California Prop 65 This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

CANADA

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations, and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS CLASSIFICATION

Not Controlled

NEW SUBSTANCE NOTIFICATION REGULATIONS

All ingredients in the product are listed, as required, on Canada's Domestic Substance List.

NPRI Substances (National Pollutant Release Inventory)
This product does not contain any NPRI chemicals.

EC CLASSIFICATION FOR THE SUBSTANCE/ PREPARATION

SYMBOL

This product is not classified as dangerous according to Directive 1999/45/EC, and it's amendments.

RISK PHRASES

None

SAFETY PHRASES

S2: Keep out of the reach of children.

SECTION 16: OTHER INFORMATION

PREPARATION DATE	6 OCT 2018
REVISION DATE	6 OCT 2018
REVISION SUMMARY	Released
PREPARED BY	Full Spectrum Power, LLC 350 Calvert Ave Alexandria, VA 22301 United States of America

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier nor any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.