Lithium Iron Phosphate ($LiFePO_4$) Battery

Safety Data Sheet · According to 29 CFR § 1910.1200, Hazard Communication Standard (HCS) · Issue date 2026-06-10 · Version 1.0

SECTION 1 Identification

1.1. Product identifier

Product form	**Article (lithium-ion battery)**
Product identifier	**Lithium-ion battery — Lithium Iron Phosphate ($LiFePO_4$ / LFP)**
Trade name	**ATB Lithium — LFP-M (Motive) and LFP-E (ESS) series**

1.2. Recommended use and restrictions on use

Recommended use	Electric storage battery for motive power and energy storage
Restrictions on use	All other uses not recommended above

1.3. Supplier's details

Supplier	**ATB Power**
Office address	95 Wai Yip Street, Kwun Tong, Hong Kong SAR
Factory address	No.4 Road, Nhon Trach 3 Industrial Park – Phase 2, Long Tho Commune, Nhon Trach District, Dong Nai Province, Viet Nam
Telephone	0084-02513566872-150
Web / Email	atbpower.com · info@atbpower.com

1.4. Emergency phone number

Emergency number	0084-02513566872-150 (business hours). For a hazardous-materials incident (spill, leak, fire, exposure, or accident), also contact local emergency services.

SECTION 2 Hazard Identification

A battery is an article. Under normal conditions of use the constituents are contained within a sealed cell and case and there is no exposure. The classification below applies to the contents and to conditions where the cell or battery integrity is compromised by mechanical, thermal, or electrical abuse.

2.1. Classification of the substance or mixture (GHS US)

HAZARD CLASS & CATEGORY	CODE	STATEMENT
Acute toxicity (oral), Category 4	H302	Harmful if swallowed.
Skin corrosion/irritation, Category 2	H315	Causes skin irritation.
Serious eye damage/eye irritation, Category 2A	H319	Causes serious eye irritation.
STOT — repeated exposure, Category 1 (bones, teeth)	H372	Causes damage to organs through prolonged or repeated exposure.
STOT — repeated exposure, Category 2 (kidneys, oral)	H373	May cause damage to organs through prolonged or repeated exposure.

HAZARD CLASS & CATEGORY	CODE	STATEMENT
Physical hazards	—	Not classified (see note below on thermal runaway).

2.2. Label elements (GHS US)

Hazard pictograms

Signal word: DANGER

Hazard statements

The materials contained in this product represent a hazard only if the integrity of the cell or battery is compromised. When the battery is physically, thermally, or electrically abused: H302 — Harmful if swallowed. H315 — Causes skin irritation. H319 — Causes serious eye irritation. H372 — Causes damage to organs (bones, teeth) through prolonged or repeated exposure. H373 — May cause damage to organs (kidneys) through prolonged or repeated exposure by ingestion.

Hazard not otherwise classified (HNOC)

Incorrect handling, charging, or storage of lithium-ion batteries may cause thermal runaway resulting in fire or explosion. A damaged or abused cell may vent flammable and corrosive gas and may ignite.

Precautionary statements

Keep out of reach of children. Do not breathe fumes or vapors from a damaged battery. Do not eat, drink or smoke when handling. Wear protective gloves, eye and face protection if handling an open or damaged battery. IF SWALLOWED: rinse mouth, call a poison center/doctor if you feel unwell. IF ON SKIN: wash with plenty of water; if irritation occurs, get medical advice. IF IN EYES: rinse cautiously with water for several minutes; remove contact lenses if present and easy to do; continue rinsing. Store as indicated in Section 7. Dispose of contents/container to an authorized lithium-battery recycler in accordance with regulations.

SECTION 3 Composition / Information on Ingredients

Mixture. The ingredients are contained in a sealed cell inside a sealed battery case. Risk of exposure occurs only if the battery is mechanically, thermally, or electrically abused. Typical percentages by weight; exact proportions vary by model.

COMPONENT	CAS NO.	% WT.
Lithium iron phosphate (cathode)	15365-14-7	~38
Graphite (anode)	7782-42-5	~20
Copper (current collector)	7440-50-8	~9
Acrylonitrile-Butadiene-Styrene (case)	9003-56-9	~8
Dimethyl carbonate (electrolyte solvent)	616-38-6	~8
Ethylene carbonate (electrolyte solvent)	96-49-1	~6
Aluminum (current collector / housing)	7429-90-5	~4
Lithium hexafluorophosphate ($LiPF_6$ salt)	21324-40-3	~2.4
Ethyl methyl carbonate (electrolyte solvent)	623-53-0	~2.3
Carbon black (conductive additive)	1333-86-4	~1.2

All concentrations are percent by weight unless otherwise indicated. Full text of H-statements: see Section 16.

SECTION 4 First-Aid Measures

Exposure occurs only from the contents of an open or damaged battery. Under normal use no first-aid measures are required.

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Remove contaminated clothing. Wash with plenty of soap and water. If irritation occurs, get medical advice. Wash clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
Ingestion	Rinse mouth. If vomiting occurs, keep the head low so vomit does not enter the lungs. Seek medical attention if you feel unwell.
Most important symptoms	Severe eye irritation (stinging, tearing, redness, swelling, blurred vision); skin irritation (redness, pain). Symptoms may be delayed.

SECTION 5 Fire-Fighting Measures

Suitable extinguishing media	ABC, BC, or CO_2 fire extinguishers; dry sand. Use copious (flooding) water to cool cells if available.
Unsuitable media	Do not use small amounts of water on a leaking/open cell; use only flooding quantities.
Specific hazards	Cells may rupture under excessive heat and release corrosive and flammable material. Combustion products may include carbon oxides, metal-oxide fumes, and hydrogen fluoride (HF). Vented gas is flammable at sufficient concentration.
Protection for fire-fighters	Full protective clothing and self-contained positive-pressure breathing apparatus (SCBA). Fight fire from a protected location; keep upwind. Prevent runoff from contaminating soil, sewers, or waterways.

SECTION 6 Accidental Release Measures

Keep unnecessary personnel away. Avoid contact with the contents of an open or damaged cell. Do not breathe fumes or vapors; provide adequate ventilation; wear the personal protective equipment in Section 8. Contain a leak from a damaged battery with sand or earth and place it in a labeled container for disposal as hazardous waste. Recover and recycle where practical. Avoid release to soil, sewers, and waterways.

SECTION 7 Handling and Storage

7.1. Precautions for safe handling

Do not dispose of in fire, mix with other battery types, charge above the specified rate, connect improperly, or short circuit; these may cause overheating, explosion, or leakage. Do not open, disassemble, crush, or burn the battery. Do not expose to extreme heat or fire. Do not allow conductive material to touch the terminals. Use only approved chargers and procedures. Avoid reversing polarity. Wash hands after handling.

7.2. Conditions for safe storage

Keep out of reach of children. Store in a cool, dry, well-ventilated, non-combustible area with clearance between battery stacks, away from heat sources and incompatible materials (Section 10). Protect from water and humidity. Do not store so that terminals can short circuit. Recommended storage state of charge 40–60%; recharge periodically during long-term storage.

SECTION 8 Exposure Controls / Personal Protection

Airborne exposure is not expected under intended use. The limits below apply only if the internal components of the cell are released.

COMPONENT	OSHA PEL	ACGIH TLV
Aluminum (7429-90-5)	15 mg/m³ (total); 5 mg/m³ (resp.)	1 mg/m³ (resp.)
Copper (7440-50-8)	1 mg/m³ (dust/mist); 0.1 mg/m³ (fume)	1 mg/m³ / 0.2 mg/m³ (fume)
Graphite (7782-42-5)	15 mg/m³ (total)	2 mg/m³ (resp.)
Carbon black (1333-86-4)	3.5 mg/m³	3 mg/m³ (inhalable)
Lithium hexafluorophosphate (21324-40-3)	2.5 mg/m³ (as F)	2.5 mg/m³ (as F)

Individual protection (only if the battery is compromised)

Eye/face	None under normal use; chemical goggles if handling an open or leaking battery.
Hands / body	None under normal use; chemical-resistant gloves and coveralls if handling leaked contents.
Respiratory	None under normal use; NIOSH-approved respirator if ventilation is insufficient and fumes are present.
Engineering controls	Ventilation not normally required; provide adequate ventilation if fumes or vapors are generated.

SECTION 9 Physical and Chemical Properties

Physical state	Solid (sealed battery in metal or plastic housing)
Appearance / color	Rectangular battery module; assorted colours
Odor	Odorless when sealed; organic-solvent odor if electrolyte is released
Flammability	Battery not flammable under normal use; internal electrolyte and vented gas are flammable
Cell nominal voltage	3.2 V ($LiFePO_4$)
Solubility / reactivity with water	$LiPF_6$ salt reacts with water/moisture to form hydrogen fluoride (HF)

Most physical-property endpoints are not applicable to a sealed article. Values relate to internal components if released.

SECTION 10 Stability and Reactivity

Reactivity / stability	Stable under normal conditions of use and storage.
Conditions to avoid	Excessive heat, fire, short circuit, overcharge, deep discharge, mechanical damage, and reverse polarity, which can cause thermal runaway.
Incompatible materials	Water and moisture (react with $LiPF_6$ to form HF), strong oxidizers, strong acids and bases, and conductive materials across the terminals.
Hazardous decomposition products	When heated or burned: carbon monoxide/dioxide, metal-oxide fumes, hydrogen fluoride, and other flammable/toxic gases.

SECTION 11 Toxicological Information

Under normal conditions of intended use this product is not expected to be a health risk; exposure occurs only from the contents of an open or damaged battery. Symptoms of exposure to released contents include skin and severe eye irritation and possible harm if swallowed. Prolonged or repeated exposure to released constituents may cause organ effects (bones, teeth, kidneys). Hydrogen fluoride from a fire or moisture contact is corrosive and toxic. Routes of exposure: inhalation of fumes, skin/eye contact, and ingestion. No exposure from an intact sealed battery.

SECTION 12 Ecological Information

The battery and its internal materials should not be released to the environment. Avoid contamination of soil, sanitary sewers, and waterways from a damaged or open battery. Metals and electrolyte components may be harmful to aquatic life. Specific ecotoxicity data for the assembled article are not established; manage spent or damaged batteries as regulated waste.

SECTION 13 Disposal Considerations

- Lithium batteries are recyclable. Return spent batteries to an authorized lithium-battery recycler or to the point of purchase.
- Do not dispose of in household waste, in fire, or in water. Do not incinerate.
- Protect terminals against short circuit before transport to recycling. A damaged or leaking battery is hazardous waste.
- Comply with all applicable local, regional, national, and international regulations.

SECTION 14 Transport Information

In accordance with DOT / IMDG / IATA. Lithium iron phosphate cells and batteries are regulated as Class 9 (lithium battery) dangerous goods.

14.1. UN number	**UN3480 (batteries shipped alone) · UN3481 (batteries packed with, or contained in, equipment)**
14.2. Proper shipping name	**Lithium ion batteries / Lithium ion batteries packed with (or contained in) equipment**
14.3. Transport hazard class	**9 (lithium battery); label 9**
14.4. Packing group	**Not assigned**
14.5. Environmental hazards	Marine pollutant: No
Provisions / packing	DOT: 49 CFR 173.185 · IATA: PI 965–967 · IMDG: special provision 188 / 348. Cells and batteries must meet the UN 38.3 test requirements.

LITHIUM BATTERY SHIPPING

Lithium batteries are fully regulated dangerous goods (unlike VRLA non-spillable lead-acid). They must meet UN 38.3, be shipped at a reduced state of charge for air transport (generally ≤ 30%), be protected against short circuit and damage, and be correctly packaged, marked, and labeled (Class 9 lithium battery mark). Confirm the current carrier and mode-specific requirements before every shipment. Damaged or recalled batteries require specialist handling.

SECTION 15 Regulatory Information

This product is an article. Where applicable, its constituents are addressed under the US OSHA Hazard Communication Standard (29 CFR 1910.1200). The component substances are listed on the US EPA TSCA inventory. Observe SARA Title III, CERCLA, and state right-to-know requirements applicable to any released constituents.

CALIFORNIA PROPOSITION 65 — WARNING

This product can expose you to chemicals including carbon black and, where present, trace metals, which are known to the State of California to cause cancer and/or reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16 Other Information

Full text of H-statements (Sections 2 and 3)

H302 Harmful if swallowed · H315 Causes skin irritation · H319 Causes serious eye irritation · H372 Causes damage to organs through prolonged or repeated exposure · H373 May cause damage to organs through prolonged or repeated exposure.

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DISCLAIMER

The information above is believed to be accurate and represents the best information currently available. It is offered for the safe handling, use, storage, transport, and disposal of the product and does not constitute a warranty of any property. Composition percentages and classifications are typical for $LiFePO_4$ lithium-ion batteries and may vary by model and cell supplier. Users should make their own investigations to determine suitability for their purposes and must comply with all applicable regulations. ATB Power assumes no liability resulting from the use of this sheet. Verify model-specific data, the emergency contact number, and current regulatory limits before relying on this document.