LiFePO₄ (Lithium Metal) Batteries are a variety of lithium-based batteries that rely on iron phosphate. These batteries come in a variety of sizes and are often used in small format solar energy storage.

Correctly Packaged LiFePO₄ Batteries

1. Prepare Shipment
   - No lithium batteries that are bloated or damaged
   - Protected terminals
   - Drum is lined
   - Cushioning material is properly distributed
   - Drum locking ring seated and fully locked
   - Proper labeling on individual drum
   - Overpack correctly labeled

2. Package Pallet
   - Protect terminals of each battery.
   - Pack with cushioning material in lined drum. Label individual drum.

3. Label & Ship
   - Attach appropriate labels to outermost layer of shrink wrap.

Incorrectly Packaged LiFePO₄ Batteries

- Improperly protected terminals
- Mixed battery chemistries without special permit
- Insufficient banding
- Insufficient shrink wrap
- No labeling
- Oversized or overheight pallet

LiFePO₄ batteries fall under the transportation guidelines for lithium-ion and are handled in a similar way. Keep in mind that these batteries should still be identified to Battery Solutions as LiFePO₄ and not lithium-ion, despite the shipping placards.

Shrink wrapped to pallet using layers of shrink wrap will help avoid shifting during shipment.

It is not possible to have too much shrink wrap or banding to secure the material to the pallets.

A general rule would be once you think you have it wrapped – add six more revolutions of wrap.
LiFePO₄ (Lithium Metal) Battery
Packaging & Shipping Instructions

These instructions must be followed exactly.

These instructions are for packaging and shipping LiFePO₄ batteries only. Lithium Batteries, unless shipping under a Department of Transportation (DOT) special permit, may not be co-mingled with other battery types. If you are unsure of the type of batteries that you have, please contact Battery Solutions for assistance.

Getting Started
Under the Universal Waste Law, you must contact Battery Solutions before sending a shipment of universal waste batteries to us so we may assign a recycling authorization tracking number to the shipment.

When calling please inform us:
- Of your specific pick-up hours.
- If you do or do not have a loading dock or lift truck to load the batteries for shipment.
- If you do not have an asphalt or concrete loading area.

If batteries are damaged or leaking, or if you are unsure if batteries are damaged, please call the Battery Solutions logistics department for instructions.

Packaging Pallet to Ship
- The U.S. DOT requires completely protecting the metal terminals on all lithium-based batteries before placing them in the shipping container. To do this, use a clear plastic tape thick and strong enough to ensure terminal protection, like packing tape or scotch tape.
- You must use a UN approved steel drum, with a plastic liner [CFR173.185(b)(3)(i)]. The container must be properly secured to a shipping pallet, free of non-compliant material and labeling.
- Cells or batteries should be packaged in a manner that prevents short circuit and or accidental shifting or movement, a non-conductive cushioning material such as vermiculite is suggested.
- Drums with proper locking lids and approved labeling can be purchased from Battery Solutions. Make sure the lids on all drums are securely locked prior to shipping.
- Always use a heavy-duty pallet with 2” x 4” supports.
- Shrink wrap the drums heavily to properly secure them to the pallet. Make sure the shrink wrap is all the way down around the pallet itself. The shrink wrap becomes an overpack.

Labeling
- Each container must be individually labeled with a label that clearly states the Proper DOT Shipping name (at least 12mm in height) and UN # (3480 or 3481), and also a Class 9 label with pictogram- the label must be a background of contrasting color and be at least 6mm in height. We can supply these labels, if needed.
- Each container must have the “ship to” address provided by Battery Solutions clearly on it, as well as an emergency phone number.
- You must label the overpack with the following labels: “Overpack”, “This Side Up”, “Lithium Metal and/or Lithium Ion Batteries”, Class 9 label. Battery Solutions can supply these to you, if needed.

Pallet Limitations
- Only use heavy-duty pallets with 2” x 4” supports.
- Pallet Size should not exceed 40”x 48”.
- Pallet weight should not exceed 2800 lbs.
- Pallet heights should not exceed 48” tall.
- The whole pallet, with layers, should never be taller than it is wide.

Shipping
- The offeror must have the proper training as required by the DOT (Contact Battery Solutions for assistance).
- Paperwork should reflect Hazmat placarding.

The party shipping or transporting batteries (the “Shipper”) to Battery Solutions, LLC. (“BSL”) must properly secure the batteries to pallets prior to loading onto the truck. Packaging and Labeling must be in compliance with the U.S. Department of Transportation – Code of Federal Regulations (CFR).

Attention Battery Solutions, LLC. Customers - Notice to Comply:
As the shipper of record you must fully comply with all U.S. Department of Transportation regulations.

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