

Shipping and Reporting Requirements for Flux Power Lithium-ion Batteries

Industrial sized lead-acid and lithium-ion batteries share many of the same shipping requirements, however there are some differences. This guide aims to assist you in understanding the shipping and reporting differences between Flux Power lithium-ion batteries and conventional wet cell lead-acid batteries.

Below is a summary of applicable regulations and packing requirements for large format wet cell lead-acid batteries and Flux LiFT Pack lithium-ion batteries for ground transportation.

| Flux LiFT Pack Lithium-Ion Battery Packs Shipping & Reporting Guidance & Comparative to Lead-Acid Batteries | | |
|--|---|---|
| | Flux LiFT Pack Lithium-Ion Batteries | Wet Cell Lead-Acid Batteries |
| Important Regulatory Information: | | |
| Required Packing Regulations: - Shipped alone: - Shipped in equipment: | UN3480 Hazard class 9 | UN2794 Hazard class 8 |
| | Packing instructions 965 49 CFR 173.185 | Packing instructions 870 49 CFR 173.159 |
| | 49 CFR 173.220 | |
| Qualified Shipping Staff: Self training: | Federal regulations require shippers be trained and have supporting documents as proof. Self-training is allowed; just make sure to follow all applicable regulations. ¹ | |
| Online Training Course: | There are numerous online training courses which issue a certificate of completion. Common carriers (FedEx, UPS) often require such a certificate. | |
| General: | Batteries and terminals must be protected against damage and short circuit. | |
| | Nothing should be packed with the batteries that may cause damage to terminals or a possible short circuit. | |
| How to package your shipment: | | |
| Packaged alone: | Secured on a pallet or packed in a wooden crate. | Strong outer package: Wooden box, Fiberboard box, Plywood drum, Fiber drum, Plastic drum, Plastic jerrican, Plastic box. |

| Packaged alone (continued): | Flux LiFT Pack Lithium-Ion Batteries | Wet Cell Lead-Acid Batteries |
|--------------------------------|---|--|
| | | Inner packaging made of non-conductive leak proof material. |
| | Non-conductive dividers are required between batteries. | |
| | | Insulating caps on battery terminals. |
| | | Top protection to prevent terminal damage either by strong outer packaging or additional protection within. |
| | Do not stack. | The package must support twice its weight, i.e. a 1,000 lbs package must support 2,000 lbs. The battery terminals must not support any of this weight. |
| Packaged in equipment: | Securely installed. | |
| | | Fastened in an upright position. |
| | Protected against heat and short circuit. | Protected against heat, short circuits, damage to terminals, and leakage. |
| | No movement within outer package. | |
| | No accidental activation of equipment. | |
| Shipping Method: | Ground only. | Ground, Air. |
| Label Requirements: | Do not stack UN 3480 Hazard class 9 label IATA lithium battery label Phone number in case information is required. | Corrosive UN2794 Hazard class 8 label Arrows pointing to the upright position. |
| Shipping Declarations: | Shipping name – LITHIUM-ION BATTERY | Shipping name – BATTERIES, WET, FILLED WITH ACID |
| | Hazmat shipping document required. | Hazmat shipping document required. |
| Hazardous Material Reporting: | None ² | Lead and acid must be reported, over specified levels. |

These materials are provided only as a guideline to assist properly trained shippers when shipping Flux Power lithium-ion batteries. These materials do not alter, satisfy, or influence any federal or state requirements. The contents of these materials are subject to change due to constant changes in government regulations. Private shipping companies (FedEx, UPS, etc.) may have additional requirements when shipping lithium-ion batteries. As battery technology evolves, so too do shipping and reporting regulations. All battery shipments are subject to U.S. and international regulations, and failure to follow these regulations may result in fines or other penalties.

Additional information can be obtained from:

- The U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (49 CFR).
- DOT's online information center: <http://hazmat.dot.gov>
- DOT's Hazardous Materials Information Center: 1-800-467-4922.

If you have any questions regarding this guide, please contact
Flux Power at 877-505-3589.

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¹ CFR 172.700-704

² The Emergency Planning and Community Right-to-Know Act (EPCRA) details hazmat reporting requirements for lead-acid batteries once specified limits are exceeded. The EPCRA does not regulate lithium-ion batteries, and therefore requires no reporting