

Safe battery packaging



The following FAQ regarding the DOT's governance of battery packaging is intended to educate and inform. All content is subject to change. To ensure proper compliance for your custom situation, please contact HAZPlus[®].

Did you know?

- PHMSA recently published the Final Rule on Transportation of Lithium Batteries (HM-224F).
- This Final Rule harmonizes many of the applicable provisions with the International Regulations, (ICAO, IMDG and the UN Model Regulations).

Significant changes in this final rule:

- Lithium Metal Batteries and Lithium Ion Batteries were defined separately and assigned UN Identification numbers in Harmonization with the International Regulations.
- Harmonizes the packaging and transportation requirements for "short-run" and prototype batteries [173.185(e)].
- New provisions for the transport of damaged, defective, and recalled lithium batteries was adopted [173.185(f)].
- Requirements for Lithium Batteries for Disposal or Recycling are revised [173.185(d)].
- Removes the use of "Equivalent Lithium Content" and replaces with Watt-Hours.
- Provides a definition for the term "Short-Circuit."

What do these changes mean for shippers?

- The new provisions for the transport of damaged or defective lithium batteries provides a compliant method for transporting these problematic batteries. The new rule outlines very specific packaging requirements for these damaged or defective batteries.
- Certain prototype and low production batteries will be eligible for some relief from the current packaging requirements.

Which types of batteries are considered dangerous goods?

Most modern battery types and traditional wet cell batteries are considered hazardous materials shipments under the HMR (CFR49) with many shipments requiring specification packaging.

Which of the different battery types require Performance Oriented Packaging (POP)?

- Wet cell batteries by surface and air modes, unless explicitly excepted [See: CFR 49 § 173.159].
- Lithium prototypes for evaluation [See: CFR 49 § 173.185(e)].
- Small runs of Lithium batteries [See: CFR 49 § 173.185 (e)].
- All Lithium batteries and equipment containing Lithium batteries by surface and air modes, unless explicitly excepted.
- Batteries made containing sodium or hydroxides are also subject to the HMR and require specification packaging unless explicitly excepted.

What are the current CFR49 Regulations pertaining to packaging lithium batteries?

Relevant packaging and classification sections of the CFR 49 pertaining to Lithium batteries, Lithium batteries, packed with equipment, and Lithium batteries, contained in equipment are found in: [CFR 49 § 173.185, CFR 49 § 172.102, Special Provisions 134, 328, A54, A101]

Safe battery packaging (cont.)

What are the hazards if lithium batteries are packaged incorrectly?

Liability of several types can be severe. External shorts can lead to dangerous evolution of heat, possible rupture or fire. Improperly packaged batteries have resulted in fires in transportation which have been known to cascade and ignite neighboring materials. Additionally, current fire suppression systems aboard airplanes are simply not equipped to suppress lithium battery fires.

What markets are affected by the more restrictive battery packaging regulations?

Battery manufacturers obviously; but also equipment manufacturers, re-shippers, distributors, retail outlets (both conventional and internet.)

Are there different requirements based on the mode of transport?

Yes—the air mode is the most restrictive. When using modes of transport normally associated with international shipments (air and water modes), the relevant international regulations must be consulted; there are inconsistencies in the international regulations that can lead to non-compliant, frustrated shipments.

What requirements are prescribed for the battery itself in order to meet the HMR specifications?

Lithium batteries, offered for shipment must be of an approved type. This requires a series of tests prescribed in the UN Manual of Tests and Criteria [known as “The Orange Book”] in Section 38.3:

1. Altitude Simulation
2. Thermal test
3. Vibration
4. Shock
5. External Short Circuit
6. Impact
7. Overcharge
8. Forced Discharge

It is the shippers’ responsibility to ascertain that the battery offered is of an approved type. [See: CFR 49 § 173.185(a)(1)]; It is important for non-manufacturers who re-offer batteries for shipment to know the status of the batteries with respect to this requirement (distributors beware!).

How can HAZPlus® provide the confidence you need when transporting lithium batteries?

- **Turn-Key Services:** We design, test and certify Performance Oriented Packaging [Specification Packaging] for hazardous material, including battery shipments.
- **Compliance Commitment:** As a packaging manufacturer with our own on-site UN/ISTA certification lab, we stand behind our efficient testing, UN certification and production quality control.
- **Choice & Flexibility:** We offer a variety of custom and stock packaging options offering the most economical alternative to suit your situation.
- **Regulatory/Packaging Expertise:** Our team of Hazardous Materials packaging specialists can answer all your questions, and guide you successfully through the maze of regulations to achieve compliance.

To find out more about how your battery shipments may be affected by **HM-224F**, contact **HAZPlus®** Battery Packaging at 1-866-596-6786 or visit www.hazplus.com.

