



Transportation of Prototype Lithium Batteries for Testing

If I received prototype lithium, lithium ion or lithium polymer batteries from Ultralife for evaluation and testing purposes that have not yet undergone testing in accordance with the requirements in the UN Manual of Tests and Criteria, how can I then ship them to my customer or another company location for further evaluation?

A. Shipping “small” prototype cells and batteries within or between the U.S. and Canada:

Small primary (non-rechargeable) lithium cells (e.g., lithium-manganese dioxide) with a maximum lithium content of 1 gram, and batteries with a maximum lithium content of 2 grams; and lithium ion cells with a maximum equivalent* lithium content of 1.5 grams, and batteries with a maximum equivalent lithium content of 8 grams, are currently excepted from the U.S. hazardous materials regulations (HMR), including the UN Testing requirements, for shipment within the U.S. This also applies to shipments to Canada that are transported by motor vehicle. No testing, Class 9 markings, specification packaging, or Class 9 label is required. However, batteries must be packed in such a way to prevent short-circuits or generating a dangerous quantity of heat.

** Equivalent lithium content for lithium ion and lithium polymer cells and batteries in grams on a per cell basis is calculated as 0.3 times the rated capacity in ampere-hours. The equivalent lithium content for a battery or battery pack is the rated capacity in ampere-hours for a single cell multiplied by 0.3 and then multiplied by the number of cells in the battery.*

The following link provides the lithium content of Ultralife products:

http://www.ultralifebatteries.com/documents/whitepapers/Ultralife_Batteries_Lithium_Weights_and_Transportation_Classifications.pdf

B. Shipping “large” prototype cells and batteries exceeding the lithium content limits:

Lithium metal, lithium ion and lithium polymer cells and batteries with lithium or equivalent lithium content higher than the limits noted above in paragraph A, that are shipped for testing purposes, may be shipped within the U.S. and Canada by motor vehicle and cargo vessel as Class 9 hazardous materials*. Very stringent packaging requirements, e.g., metal drum, and personnel training requirements, apply to those batteries shipped on cargo vessel. Shipments by air of these “large” prototype cells and batteries are authorized by cargo aircraft only if the shipper obtains an Approval from the U.S. Department of Transportation.

** Reference: 49 CFR 173.185(j) of the US Hazardous Materials Regulations (HMR)*

C. For international shipments:

Prototype cells and batteries, regardless of the amount of lithium metal or equivalent lithium content they contain, are prohibited from shipment on passenger aircraft and are authorized by cargo aircraft only if the shipper obtains an approval from the appropriate transportation agency (e.g., U.K. Civil Aviation Authority).



Class 9

Class 9 is one of nine hazardous materials shipping classifications defined by the US HMR and other transportation regulations. Class 9 defines the specification packaging, markings, labeling, and shipping paper requirements for Miscellaneous hazardous materials, which include lithium and lithium ion cells and batteries, among other materials.

Class 9 Training Requirements

The international and U.S. transportation regulations require employees involved in the packaging or shipment of Class 9 lithium or lithium ion cells and batteries to complete a hazardous materials training course. Employees must renew their certification training every three years in the U.S. and every two years under the international regulations. Companies whose "haz mat" employees have not undergone training may not package or ship batteries for Class 9 transportation. In that case, companies must contract with another company, which is certified to package and ship Class 9 batteries.

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