



DG Shipping Guide #15 – 49 CFR
LITHIUM METAL BATTERIES
(Fully Regulated Class 9 Shipment per § 173.185)

Revision Date: 10/30/2023

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49 CFR Shipping Instructions for GROUND Transportation

UN3090, LITHIUM METAL BATTERIES, 9
(§ 173.185 → Fully regulated cells & batteries)

ONLY TRAINED HAZMAT EMPLOYEES MAY SHIP LITHIUM BATTERIES USING THIS GUIDE.

Some batteries are regulated when shipped or offered for transportation. If the battery is restricted, then all applicable hazardous materials regulations must be met. This guide provides information to assist you in how to ship the battery by road.



How can I tell if the battery is regulated?

Batteries normally have the size listed directly on the battery case which will help you identify whether or not it can be shipped without special packaging and package marking; in other words, shipped as non-restricted in transportation.



These instructions have been specifically prepared for the shipment of **Lithium Metal Batteries fully regulated as Class 9, UN3090**; 49 CFR, revised as of October 1, 2023.

DO NOT USE THESE SHIPPING INSTRUCTIONS FOR OTHER BATTERY TYPES.

All employees are responsible for compliance with applicable domestic and international dangerous goods transport regulations. All employees must be dangerous goods trained prior to using this shipping template. All information in this shipping template is accurate through the date of revision and must be validated against the regulations yearly and updated as regulations change.



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DESCRIPTION

Items

(Identify and insert the description of items that may be shipped utilizing this template in this section.)

SHIPPING BY GROUND (49CFR)

Shipping Location:

Transport by Road / Motor Carrier

Shipping Company:

(Identify in this section the carriers used and carrier requirements)
(i.e. Motor carriers such as ...)

NOTE:

Damaged, defective or recalled cells or batteries, that have the potential of producing a dangerous evolution of heat, fire, or short circuit (including those being returned to the manufacturer for safety reasons) and are offered for road or rail transport must be prepared in accordance with the provisions detailed in §173.185(f).

CLASSIFICATION

UN Number and Proper Shipping Name

UN 3090, LITHIUM METAL BATTERIES

Battery Testing Data

LITHIUM METAL CELLS OR BATTERIES MUST MEET THE REQUIREMENTS OF EACH TEST IN THE *UN Manual of Tests and Criteria, Part III, subsection 38.3.*

A cell or battery and equipment containing a cell or battery that was first transported prior to January 1, 2006 and is of a type proven to meet the criteria of Class 9 by testing in accordance with the tests in the UN Manual of Tests and Criteria, Third Revised Edition, 2003, need not be retested.

Lithium Battery Test Summary

A test summary complying with the requirements of the UN Manual of Tests and Criteria, Part III, Subsection 38.3, Paragraph 38.3.3.5 is required to prove all cells/batteries have been properly tested. Test Summary is not a transport document and is not required to be provided as a transport document. However, carriers may request a copy be provided.

Site testing data:

(Insert the location of battery testing documentation and/or attached to the shipping instructions)

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Special Provisions

388, 422, A54

PACKAGING

Packing Requirements

§ 173.185(b)

Lithium Cells and Batteries

A lithium metal cell >5 g or a lithium metal battery >25 g, including a lithium alloy cell or battery

Protect to prevent short circuits

The site must identify and insert information on how this will be done for applicable shipments.

Equipped with an effective means of preventing external short circuits. (i.e. place a single battery in a plastic bag and then place in a package.)

THE CELLS OR BATTERIES MUST INCORPORATE A SAFETY VENTING DEVICE OR BE DESIGNED NOT TO RUPTURE UNDER THE NORMAL CONDITIONS OF TRANSPORT.

Each battery containing cells, or a series of cells connected in parallel must be equipped with an effective means, as necessary, to prevent dangerous reverse current flow (e.g. diodes, fuses).

Combination Packaging

Be packaged in combination packagings, UN Specification with a Packing Group II performance level.

Lithium metal battery or cell must be packed in non-metallic inner packaging that completely enclose the cells or batteries, and separate them from contact with equipment, other devices or conductive materials in the packaging. Packaged in a manner to prevent short circuits, movement within the outer package, and accidental activation of the equipment.

The inner packaging must be packed within one of the following outer packagings: metal boxes (4A, 4B or 4N); wooden boxes (4C1, 4C2, 4D, or 4F); fiberboard boxes (4G); solid plastic boxes (4H1 or 4H2); fiber drums (1G); metal drums (1A2, 1B2 or 1N2); plywood drums (1D) or plastic drum (1H2); plastic jerricans (3H2); or metal jerricans (3A2 or 3B2).

Outer Packaging

The package must be a STRONG OUTER PACKAGING; UN SPECIFICATION MEETING A PACKING GROUP II PERFORMANCE STANDARD.

Packing group II performance packaging tests include 1.2 m drop test and stack test for 24 hours.

UN Specification Mark for Fiberboard box



4G/Y35/S/24
USA/+AB1234

UN Specification mark EXAMPLE

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PACKAGING

with PG II Performance Standard

Packaging must meet packing group II performance standard indicated by “Y” or a higher packing group I performance with an “X” in the specification marking

Type of Packaging

(Insert the type of packagings to be used. In addition, insert closure instructions or the location of the closure instructions to be used.)



UN specification fiberboard box meeting PG II performance standard

Batteries with gross mass of ≥ 12kg

Lithium batteries that weigh 12 kg (26.5 pounds) or more and have a strong, impact-resistant outer casing and assemblies of such batteries, may be packed in strong outer packagings; in protective enclosures (for example, in fully enclosed or wooden slatted crates); or on pallets or other handling devices, instead of packages meeting the UN performance packaging requirements. Batteries or battery assemblies must be secured to prevent inadvertent movement, and the terminals may not support the weight of other superimposed elements.

Batteries packaged in this manner are not permitted for transportation by passenger aircraft and may be transported by cargo aircraft only if approved by the Associate Administrator prior to transportation.

Disposal or Recycling
(see § 173.185(d))

For a lithium metal cell or battery offered for transportation or transported by motor vehicle to a permitted storage facility, disposal site or for purposes of recycling:

- No UN Specification packaging required
- Not required to prove it meets the UN Manual of Tests and Criteria
- Not required to incorporate a safety venting device

Provided the following conditions are met:

- Protected against short circuits and
- Packed in a strong outer packaging conforming to the requirements of §173.24 (General Requirements for packagings and packages) and §173.24a (Additional General Requirements for non-bulk packagings and packages).



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MARKING / LABELING

MARKING

Mark with the Proper Shipping Name and UN Number; add the name and address of the shipper OR consignee
UN3090, LITHIUM METAL BATTERIES

LABELING THE PACKAGE

Lithium Battery Class 9 label



Example of completed package for transport by road:



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DOCUMENTATION

Document Type (see §172.201(a)(1))	No specific form required; specific information required. <ul style="list-style-type: none">• Hazardous materials must be listed first, or• Contrasting color; or• Identified by the entry of an “X” placed before the basic description in the HM column (if a reportable quantity, the “X” may be replaced by “RQ”).
Basic Shipping Description (see §172.202)	UN3090, LITHIUM METAL BATTERIES, 9
Quantity and Type of Packaging (see §172.202(c))	Total quantity of material, type of packaging (e.g. 4 Boxes, 20 kg each)

DOCUMENTATION EXAMPLE

No. of Units & Container Type	HM	DESCRIPTION	TOTAL QUANTITY
4 boxes	X	UN3090, Lithium metal batteries, Class 9	12 lb
This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled/placarded, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.			Emergency Response Phone Number: Contract #
Signature: <u>Joe Shipper</u>			Date: <u>1/3/2024</u>

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TRAINING REQUIREMENTS

Training Requirements

Hazmat employee training must include the following:

- *General awareness / familiarization training*
- *Function-specific training*
- *Safety training*
- *Security awareness training*
- *In-depth security training:* Only required for hazmat employees of a person required to have a security plan in accordance with Subpart I of this part who handle hazardous materials covered by the plan, perform a regulated function related to the hazardous materials covered by the plan, or are responsible for implementing the plan.

Initial training

A new hazmat employee, or a hazmat employee who changes job functions may perform those functions prior to the completion of training provided:

- *The employee performs those functions under the direct supervision of a properly trained and knowledgeable hazmat employee; and*
- *The training is completed within 90 days after employment or a change in job function.*

Recurrent training

Hazmat employees must receive the training required by this subpart at least once every three years; please note that Honeywell requires recurrent training every two years.

STORAGE

Storage Location & Special Considerations

(Insert storage requirements or special considerations.)



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REFERENCES

Code of Federal Regulations	49 CFR Parts 100 to 185; October 1, 2023.
Packing Requirements	§173.185
UN Specification Packaging	Part 178, Subparts L and M
Marking	§172.301
Labeling	§172.400(a)
Documentation	§172.202
Training Requirements	§172.704

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