

Dangerous Goods Transport Regulations for Lithium Cells and Batteries

January 2023

Transport regulations are important for those involved in shipments of lithium cells and batteries to ensure compliance and the avoidance of delays. An update to the regulations is explained here. Since the information here is a summary only, please use the latest Dangerous Goods Regulations listed in the Normative Reference section to confirm the details.

Table Packing instructions for lithium metal batteries (PI 968)

	Section IB	Section IA
Lithium metal content	Cell: 1g or less Battery: 2g or less	Cell: more than 1g Battery: more than 2g
Net quantity per package	Passenger aircraft: Forbidden Cargo aircraft: 2.5kg or less	Passenger aircraft: Forbidden Cargo aircraft: 35kg or less
Classification	Class 9	
Packaging	Strong rigid outer packaging that passes following test <ul style="list-style-type: none"> • 1.2m drop test • 3m stacking test 	UN specification packaging
Labels	Cargo aircraft only label Lithium battery hazardous label Lithium battery mark *Delete phone number in the mark (Transition period : Until December 31, 2026)	Cargo aircraft only label Lithium battery hazardous label
Documents	Shipper's declaration for dangerous goods Air waybill* Test summary *Except for button/coin cells installed in equipment (including circuit boards)	
Training	Implementation and recording of dangerous goods training and assessment	

*The words "Dangerous Goods as per attached Shipper's Declaration" and "Cargo Aircraft Only" or "CAO" must appear in the air waybill's "Handling Information" column.

Table Packing instructions for lithium ion batteries (PI 965)

	Section IB	Section IA
Watt-Hour rating	Cell: 20Wh or less Battery: 100Wh or less	Cell: more than 20Wh Battery: more than 100Wh
State of Charge (SOC)	30% or less of rated capacity	
Net quantity per package	Passenger aircraft: Forbidden Cargo aircraft: 10kg or less	Passenger aircraft: Forbidden Cargo aircraft: 35kg or less
Classification	Class 9	
Packaging	Strong rigid outer packaging that passes following test • 1.2m drop test • 3m stacking test	UN specification packaging
Labels	Cargo aircraft only label Lithium battery hazardous label Lithium battery mark *Delete phone number in the mark (Transition period : Until December 31, 2026)	Cargo aircraft only label Lithium battery hazardous label
Documents	Shipper's declaration for dangerous goods Air waybill* Test summary *Except for button/coin cells installed in equipment (including circuit boards)	
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*The words "Dangerous Goods as per attached Shipper's Declaration" and "Cargo Aircraft Only" or "CAO" must appear in the air waybill's "Handling Information" column.

<Drawings of labels>

Cargo aircraft only label



Lithium battery mark



*Place for UN number(S).

Lithium battery hazardous label



■ The major additional information for air transport of lithium cells and batteries

The test summary must be made available as specified in the UN Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

Reference

Except air transportation, the minimum requirements to transport lithium cells and batteries as exempted from class 9 dangerous goods (non-restricted goods) are as follows:

- 1) Cells and batteries shall be manufactured under a quality management program.
- 2) For a lithium metal cell, the lithium content is not more than 1 g. For a lithium metal battery, the aggregate lithium content is not more than 2 g.
For a lithium-ion cell, the Watt-hour rating is not more than 20 Wh. For a lithium-ion battery, the Watt-hour rating is not more than 100 Wh. The Watt-hour rating must be marked on the outside of the battery case except for batteries manufactured before January 1, 2009.
- 3) Each cell or battery must be of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.
- 4) Cells shall be packed in inner packaging that completely encloses the cell. The inner packaging shall be packed in strong rigid outer packaging.
- 5) A lithium battery mark must be marked on each package. A UN number must be placed on the mark.
- 6) Each package must be capable of withstanding a 1.2 m drop test.
- 7) Except when batteries are installed in or packed with equipment, packages shall not exceed 30 kg gross mass.

Maxell will provide certificates for 2) and 3) as the need arises. Documentation for 4) and 5) needs to be prepared by the customer. If our package is used for transport, Maxell will provide the certificate for 6) as the need arises. However, if the customer's package is used, the customer must confirm the package can withstand a 1.2 m drop test. Furthermore, even if our package is used for transport, the telephone number printed on the mark must be changed to that of the sender (customer).

Normative References

[Multi-Mode (Air, Marine and Overland) Transportation]

- UN (United Nations): Recommendations on the Transport of Dangerous Goods: Model Regulations 22nd revised edition
- UN (United Nations): Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria Revision 7, Amendment 1

[Air Transportation]

- ICAO (International Civil Aviation Organization): Technical Instructions for the Safety Transport of Dangerous Goods by Air 2023-2024 edition
- IATA (International Air Transport Association): Dangerous Goods Regulations 64th edition

[Marine Transportation]

- IMO (International Maritime Organization): International Maritime Dangerous Goods (IMDG) Code 2022 Edition