

How do you check if lithium batteries are suitable for export?

Exporting lithium batteries requires a careful inspection process due to strict international safety regulations. You must verify that your batteries comply with UN certifications, are in good condition, and that the packaging and documentation meet all requirements. Only then can lithium batteries be safely transported across borders without delay or rejection. This article covers all the essential steps for successful export control.

What safety regulations apply to the export of lithium batteries?

Lithium batteries are subject to strict international safety regulations due to their flammable properties. The most important regulations come from the United Nations, laid down in the UN 38.3 test regulations. These tests check whether lithium batteries can withstand altitude differences, extreme temperatures, vibrations, shocks, short circuits, impact and overcharging.

In addition to UN regulations, transport-specific rules also apply:

- **Air transport:** IATA Dangerous Goods Regulations (DGR) and ICAO Technical Instructions
- **Sea transport:** International Maritime Dangerous Goods (IMDG) Code
- **Road transport:** ADR in Europe, DOT in the US

The classification of your lithium batteries determines which specific export requirements apply. A distinction is made between:

- Lithium-ion vs. lithium-metal batteries
- Batteries in equipment vs. separate batteries/cells
- Watt-hour value (Wh) for lithium-ion or lithium content for lithium-metal

Defence applications often have additional requirements, such as MIL-STAN certifications, which require extra attention when exporting batteries for military equipment such as [drones and defence communication systems](#).

What documents are required for lithium battery export?

For the correct export of lithium batteries, you must collect and prepare various documents. The most important document is the UN 38.3 test certificate, which proves that your battery type has passed the mandatory safety tests. You must obtain this certificate from the battery manufacturer or through an accredited testing laboratory.

Other essential documents are:

- **Safety Data Sheet (SDS/MSDS)** – With detailed information about the chemical composition, hazards and emergency measures
- **Declaration of dangerous goods** – With the correct UN number (UN3480, UN3481, UN3090 or UN3091, depending on the battery type)
- **Battery test summary** – Mandatory since 2020, contains a summary of test results
- **Commercial invoice and packing list** – Clearly stating that the goods are lithium batteries
- **Export licences** – May be required for certain destinations, especially for defence applications

Exemptions sometimes apply to certain battery types with low energy values, resulting in less stringent documentation requirements. Always check the latest regulations, as these are subject to frequent changes.

How do you determine the condition and quality of lithium batteries for export?

The condition and quality of lithium batteries are crucial factors for safe transport. Damaged or defective batteries may not be exported through regular channels. You can assess the condition of batteries using various inspection methods:

Visual inspection: Check for:

- Physical damage such as dents, cracks or leakage
- Deformation or swelling of the casing
- Corrosion on contact points
- Overheating (discolouration or melt marks)

Functional tests:

- Capacity measurement to check whether the battery still has sufficient charging capacity
- Voltage check to verify that the battery is within the normal operating voltage range
- Internal resistance measurements to detect ageing or damage

Batteries are considered defective and are not suitable for regular transport if they:

- Do not comply with the manufacturer's safety regulations
- Are physically or electrically damaged
- Leak, gas or overheat
- Have manufacturing defects that could affect safety

Batteries that are classified as defective are subject to special transport regulations (UN3480/UN3090 SP 376) or must be excluded from transport.

What are the packaging requirements for exporting lithium batteries?

Proper packaging is essential for the safe export of lithium batteries. International regulations set specific requirements for packaging materials and methods:

General packaging requirements:

- Use UN-certified packaging that complies with packaging instructions (PI 965-970 (IATA) or P903 (ADR/IMDG))
- Ensure adequate protection against shock and vibration
- Prevent short circuits by insulating battery terminals with non-conductive material
- Ensure that batteries cannot move within the packaging
- Avoid contact between batteries to prevent mutual short circuits

Packaging marking and labelling:

- Lithium battery trademark (according to the latest IATA regulations)
- Correct hazard class labels (Class 9 for dangerous goods)

- UN number and shipping name
- ‘Cargo Aircraft Only’ label if required
- Emergency contact details

Industrial applications, such as in the defence and security sectors, often require specialised, robust packaging that offers extra protection against extreme conditions. Examples include aluminium boxes, flight cases or special transport cases specifically designed for the safe transport of sensitive equipment with lithium batteries.

What are the transport restrictions for different types of lithium batteries?

Transport restrictions vary considerably between different types of lithium batteries and transport methods. Here is an overview of the most important restrictions:

Lithium-ion vs. lithium metal:

- Lithium-ion (UN3480/UN3481): Generally more strictly regulated for air freight
- Lithium metal (UN3090/UN3091): Often prohibited on passenger flights

Energy value restrictions:

- Lithium-ion cells: Maximum 20 Wh per cell
- Lithium-ion batteries: Maximum 100 Wh per battery for passenger flights
- Batteries >100 Wh: Only permitted as cargo, with additional restrictions
- Lithium metal: Maximum 1 gram of lithium per cell, 2 grams per battery

State of Charge (SoC):

- Loose lithium-ion batteries (UN3480) may be charged to a maximum of 30% for air transport
- Batteries in equipment have no SoC restriction

Quantity restrictions:

- Air transport: Strict limits on number and weight per package
- Sea transport: Less strict limits, but specific stowage requirements
- Road transport: Exemptions possible for small quantities

Professional applications in high-tech and defence often require special transport solutions, especially when batteries are part of sensitive or critical equipment. It is important to work with a dangerous goods expert to correctly interpret all transport restrictions.

Conclusion

Exporting lithium batteries requires thorough preparation and attention to detail. By carefully following all safety regulations, documentation requirements, quality controls, packaging guidelines and transport restrictions, you can ensure a safe and smooth export process.

Given the complexity and regular updates to regulations, it is wise to work with experts who specialise in dangerous goods transport. At Faes, we understand the unique challenges of transporting sensitive equipment with lithium batteries, especially for demanding sectors such as defence and security. With our expertise in industrial custom packaging, we can help you get your valuable and sensitive equipment safely to its destination.

Frequently Asked Questions

How can I check whether my batteries comply with UN 38.3 testing requirements?

Always request a copy of the UN 38.3 test certificate from your supplier or manufacturer. This document must refer specifically to your battery model and contain all eight mandatory tests. If you have any doubts about its authenticity, you can contact the test laboratory listed on the certificate for verification. For older batteries that you already have in your possession and for which documentation is missing, you may still need to have tests carried out at an accredited laboratory.

What are the most common mistakes when exporting lithium batteries?

The most common errors are: incomplete documentation (especially the lack of UN 38.3 test certificates), incorrect classification of the battery type, incorrect packaging that does not comply with regulations, missing or incorrect labelling, and insufficient protection against short circuits. The State of Charge (SoC) limit of 30% for air transport of loose lithium-ion batteries is also often ignored, leading to immediate rejection during transport checks.

What additional steps do I need to take when exporting lithium batteries to countries outside the EU?

For exports outside the EU, you must take into account customs procedures and possible additional country-specific requirements. Check whether import restrictions apply in the destination country and whether special permits are required, especially for batteries in defence equipment. Some countries require additional certifications or specific declarations. Also, ensure a clear HS code classification and prepare for possible customs inspections by having all documentation readily available.