

What are the ADR regulations for lithium battery road transport 2025?

The ADR regulations for lithium batteries will undergo significant changes in 2025 that will affect road transport. The new regulations impose stricter requirements on packaging, classification and documentation in order to increase safety during transport. If you work with lithium batteries, it is important to understand these changes and adapt your transport processes accordingly in order to remain compliant and avoid fines.

What are the main changes to the ADR rules for lithium batteries in 2025?

ADR 2025 introduces several significant changes for the transport of lithium batteries by road. The main changes are stricter test criteria for batteries, more extensive requirements for temperature control during transport, and new regulations for the transport of used and damaged batteries.

One **essential change** concerns the test procedures according to section 38.3 of the UN Manual of Tests and Criteria. All lithium batteries must now have successfully passed these tests and be accompanied by a test report that must be available on request. This also applies to batteries that were already in use under previous regulations.

In addition, the regulations for the transport of low-energy batteries (< 100Wh for lithium-ion and < 2g lithium content for lithium metal) have been amended. These are now subject to stricter packaging instructions, with the previous exemptions being limited.

ADR 2025 also introduces new provisions for the transport of lithium batteries in waste status and for recycling. Specific packaging instructions have been added that focus on the safe transport of these batteries, including measures to prevent short circuits.

For large industrial batteries, such as those used in defence equipment and drones, there are new regulations for temperature monitoring and management during transport. This is particularly relevant for the transport of high-capacity battery systems used in military and security applications.

What packaging requirements apply to lithium batteries according to ADR 2025?

The packaging requirements for lithium batteries have been further tightened and specified in ADR 2025. The basic requirement remains that all packaging must be UN-certified and must meet the performance criteria of packaging group II.

For **intact lithium-ion batteries** (UN3480), packaging instructions P903 apply, which specify that each battery must be individually protected against short circuits and placed in a sturdy outer packaging. The packaging must withstand a drop test of 1.2 metres without damaging the contents.

For **damaged or defective batteries** (UN3480), the requirements are even stricter. These are covered by packaging instruction P908 or P911, depending on the severity of the damage. These batteries require additional protection, such as non-conductive and non-combustible padding material, and in some cases a completely sealed protective enclosure that can vent gases.

Batteries installed in equipment (UN3481) are covered by P903. Here, the equipment must be packaged in such a way as to prevent accidental activation. For large equipment, such as that used in the defence sector, the battery may remain in the equipment if it provides adequate protection.

An important new requirement is the implementation of thermal protection for battery packs above a certain capacity. These must be equipped with means to prevent dangerous temperature rises during transport.

For large industrial battery systems, such as those used in military applications, additional requirements apply for robust outer packaging that can withstand extreme conditions. These often have to comply with MIL-STAN specifications in addition to ADR requirements, which is relevant for defence organisations transporting advanced equipment.

How are lithium batteries classified under ADR 2025?

The classification of lithium batteries under ADR 2025 is based on the type of battery, its energy content, and whether it is transported separately or in equipment. This classification determines which transport regulations apply.

Lithium batteries are primarily divided into two main categories:

- **Lithium-ion batteries** (including lithium polymer): UN3480 when transported separately, UN3481 when packed with equipment or installed in equipment.
- **Lithium metal batteries**: UN3090 when transported separately, UN3091 when packed with equipment or installed in equipment.

In addition, there is a further subdivision based on the condition of the battery:

- Normal, undamaged batteries (standard UN numbers as above)
- Damaged or defective batteries (UN3480 or UN3090 with special packaging instructions)
- Batteries for disposal or recycling (UN3480 or UN3090 with special packaging instructions)
- Prototype batteries or small production series (less than 100 pieces)

ADR 2025 introduces a new, more detailed classification for lithium-ion batteries based on their energy content:

- Low energy content: ≤ 20 Wh for cells, ≤ 100 Wh for battery packs
- Medium energy content: > 20 Wh but ≤ 60 Wh for cells, > 100 Wh but ≤ 300 Wh for battery packs
- High energy content: > 60 Wh for cells, > 300 Wh for battery packs

A similar classification applies to lithium metal batteries, but based on the lithium content in grams.

The hazard class remains 9 (miscellaneous dangerous substances and articles), but within this class, lithium batteries are now classified more specifically with different hazard labels depending on the type and energy content.

What documentation is required for road transport of lithium batteries in 2025?

According to ADR 2025, various documents are required for the transport of lithium batteries by road. The correct documentation is essential to demonstrate that you comply with all regulations.

The **most important document** is the ADR transport document (consignment note), which must contain the following information:

- The UN number, preceded by the letters ‘UN’ (e.g. “UN3480”)
- The correct transport name (‘LITHIUM-ION BATTERIES’ or ‘LITHIUM-METAL BATTERIES’)
- The label model number (Class 9)
- The packaging group (usually II)
- The tunnel restriction code (E)
- The number and type of packages
- The total quantity of dangerous goods

In addition, a **written instruction** in accordance with ADR is mandatory. This document contains information about the measures to be taken in the event of an accident or emergency and must be available in all languages of the countries through which the transport passes.

New in ADR 2025 is the requirement to have a **test report in accordance with section 38.3** of the UN Manual of Tests and Criteria available. This report must demonstrate that the batteries have passed all the required tests and must be available for inspection upon request.

Damaged or defective batteries require an **additional declaration** describing the nature of the damage or defect and confirming the safety measures taken.

If you are transporting high-energy batteries, you must also include documentation describing the **thermal protection measures** taken to prevent dangerous temperature rises during transport.

All lithium batteries must have a **safety data sheet (SDS)** available that contains information about the composition, hazards, handling, and emergency measures.

If you transport batteries internationally, additional documents may be required, such as customs forms and export declarations.

Conclusion

The ADR rules for lithium batteries will be significantly tightened in 2025, with a focus on increased safety during transport. These changes will have an impact on classification, packaging and documentation, and will require thorough preparation by everyone involved in the transport of these batteries.

Given the complexity of these regulations and the potential safety risks, it is important to be proactive in understanding and implementing these new requirements. This is especially important for sectors such as defence and security, where high-capacity lithium batteries are essential for critical equipment such as drones and communication systems.

At Faes, we understand the unique challenges involved in transporting sensitive and valuable equipment with lithium batteries. Thanks to our expertise in regulated sectors such as defence and security, we can help you with packaging solutions that not only comply with ADR 2025 requirements, but also with specific sector requirements such as MIL-STAN certifications.

Frequently asked questions

How do I prepare my organisation for the ADR 2025 changes for lithium batteries?

Start by making an inventory of all lithium batteries that your organisation transports, including type, energy content and current packaging methods. Ensure that all your staff involved in transport are retrained on the new rules. Update your packaging materials and procedures in line with the new requirements, and collect the necessary test certificates and documentation for your batteries in advance. Consider having your current transport processes audited by an ADR safety advisor.

What are the consequences if I do not comply with the new ADR 2025 rules for lithium batteries?

Failure to comply with the ADR 2025 rules can result in significant fines, seizure of goods, and in serious cases even criminal prosecution. Transport companies may refuse to carry your shipments, leading to delays in your supply chain. In the event of accidents involving non-compliant batteries, your company may be held liable for damage and injury, resulting in potential insurance issues. In addition, your company's reputation could be seriously damaged.

How should I handle lithium batteries manufactured before 2025 but transported after the new rules come into force?

Older lithium batteries manufactured before 2025 must also comply with the new ADR 2025 requirements when transported after implementation. This means that you must still be able to provide test certificates in accordance with section 38.3 and that the packaging must comply with the new requirements. If this documentation is not available, you may need to contact the manufacturer for the correct certificates or consider having tests carried out by an accredited testing laboratory.