

# LogBATT - 360° Battery Logistic

Frequently asked questions about battery logistics. Answers to your most important questions about the safe and efficient handling of lithium batteries.

## What is the difference between dangerous goods and waste?

The difference between dangerous goods and waste lies in the definition and intended use. Dangerous goods are substances or objects that **pose a risk to people, the environment or property** during transport and are subject to specific regulations such as ADR, RID or IATA-DGR. Waste, on the other hand, is a substance or object that the owner **no longer needs and wishes to dispose of**. Disposal is regulated by the Closed Substance Cycle and Waste Management Act. A substance can be both, such as used lithium batteries. In this case, both the dangerous goods regulations for transport and the waste regulations for disposal must be observed.

## What are the legal obligations for my company under ADR ?

Since 2015, lithium-ion batteries have been classified as dangerous goods in the 54 countries that have signed the **ADR**. Companies transporting lithium batteries must comply with ADR regulations, including correct classification (e.g., UN 3480, UN 3481), packaging in approved dangerous goods containers, and labeling with the appropriate dangerous goods labels. All personnel involved in the transport of dangerous goods must undergo regular training, and drivers must hold an ADR license and wear the necessary protective equipment. Additionally, the required transport documents must be completed.

## What are the main regulations for the transport of batteries?

The transport of batteries is subject to **national and international regulations** such as KrWG, GGBefG and ADR. Lithium batteries are classified as **dangerous goods of Class 9** and

must be appropriately packaged, labelled and secured. Additional regulations apply depending on the mode of transport (road, air, sea). When transporting waste batteries on public roads, a visible A-sign (waste warning sign) must be affixed to the vehicle. This obligation applies regardless of the amount of waste and also for non-hazardous waste.

## Who is involved in the transport of dangerous goods?

Involved persons are all individuals who perform supporting activities related to the transport of dangerous goods before and after the transport, such as **packaging, completing transport documents and labels, dispatching, loading, unloading, and receiving**. This includes, for example, workshop employees who hand over lithium batteries to a disposal company.

## What will change with the new battery regulation?

Since 2024, new rules to promote the circular economy have applied in the EU. The new Battery Regulation aims to increase **collection rates** and expand **labelling requirements** for batteries. A key innovation is the simplified **replaceability of batteries** in electric vehicles, smartphones and tablets. Additionally, stricter recycling requirements are being introduced to recover valuable raw materials.

## How is the condition of a battery assessed before transport?

Before transport, every battery should be inspected for **external damage** such as dents, cracks or leaking liquids. The charge level is also important, as fully charged batteries pose a higher risk. In some cases, an additional

inspection by **qualified personnel** is required to ensure the battery can be safely transported. **Special documentation requirements** apply for the transport of damaged or critical batteries to record the condition and ensure transport safety.

### **Which batteries are considered dangerous and require special handling?**

**Lithium batteries are considered safe if handled properly.** They are particularly dangerous if they are damaged, overcharged or short-circuited, as this can lead to fire or explosion. **Damaged, defective, or uninspected batteries** are considered particularly **dangerous** and are subject to strict transport regulations. They must be transported in UN-approved emergency or specialized containers to ensure environmental protection. Large industrial batteries and high-voltage batteries used in electric vehicles also require **special packaging and safety measures**. Correct labelling and packaging are essential to minimize risk.

### **What labelling is required for the safe transport of batteries?**

For the safe transport of lithium batteries, the ADR hazard symbols play a central role. Lithium batteries fall under **hazard class 9** and must therefore be specially labeled. Each package must be marked with the relevant **UN number** and a transport label. In addition, the **dangerous goods label 9A** is required to indicate possible hazards.

### **What are the packaging requirements for transporting batteries?**

According to ADR requirements, lithium-ion batteries must be **protected against short circuits**. For large or damaged batteries, stricter regulations apply, requiring the use of **UN-approved containers** specifically designed for

the transport of dangerous goods. In addition, all packages must be clearly **labelled** in accordance with applicable regulations.

### **What recycling processes are used to recover materials from lithium-ion batteries?**

Battery recycling enables the recovery of valuable raw materials that can be reused in the production of new batteries. Multi-stage recycling options include **mechanical, pyrometallurgical** and **hydrometallurgical processes**.

### **What is the difference between the various recycling processes?**

**Mechanical** recycling involves shredding and separating lithium batteries into their component parts, separating metals, plastics and black mass. **Pyrometallurgy** melts the batteries or their shredded components in a blast furnace, vaporising volatile substances and leaving metals such as nickel and cobalt in the melt. In **hydrometallurgy**, the metals are dissolved from the melt using acids or bases and then recovered by chemical precipitation or electrolysis. The processes are often combined to **maximise material recovery**, with the mechanical process usually being the first step and pyrometallurgy and hydrometallurgy complementing each other.

### **What are the legal requirements for the safe storage of lithium batteries?**

The only advice currently available on the storage of these batteries is from insurance companies and fire brigades. Despite the lack of a legal basis, storage must not take place without appropriate protective measures, as hazards can arise from improper handling or technical defects. These can be minimised by an appropriate **fire and health and safety plan** and the use of appropriate storage technology.