

What to be aware of when shipping Dangerous Goods (EU) / HAZMAT (US)

Dangerous goods include explosives, gases, flammable liquids, toxic substances, infectious substances, radioactive substances, corrosive substances, and more, which can be a hazard to people, animals or the environment if not properly handled in use or in transport.

Therefore; The transport of dangerous goods needs to be regulated in order to prevent, as far as possible, accidents to persons or property and damage to the environment, the means of transport employed or to other goods.¹

So when you plan to ship cargo by Road, Rail, Ship or Air, it is important that you check your cargo for any of the following or similar labels:

Retail packaging labels:



Shipping labels (divided by the UN Model Regulations classification of danger):



If your goods or cargo is marked with any of these or other hazardous labels, then you need to handle and ship them as dangerous goods/hazmat. Which means that the certification, packaging, labelling and making of the paperwork, must be done by certified personnel. This can e.g. be the shipping agency that you plan to use.

Lars Berg Larsen and Marie Kirk have IATA, DOT (49 CFR) and U.S. Air Force certification (AFMAN 24-204), and we can help you with any questions that you might have. But is important to stress, that we cannot certify or ship your cargo from your country to Denmark/Greenland, as this demands us to physically see the cargo.

Lithium Batteries

When you plan ship any dangerous goods/hazmat, you must also be aware, that the hardest way to ship them is by Air. The [IATA Dangerous Goods Regulations](#) are by far the strictest regulations. From April 2016, they have further regulated the transport of lithium batteries. Due to a series of incidents involving fires on aircraft from shorted lithium batteries. All modern electronics, such as cell phones, GPS, MP3 players, laptops, cameras etc. contain lithium batteries.

IATA distinguish between “lithium ion batteries” and “lithium metal batteries”

“lithium ion batteries” are a type of secondary (rechargeable) battery commonly used in consumer electronics. Also included within the category of lithium-ion batteries are lithium polymer batteries. They are generally found in mobile telephones, laptop computers, etc.ⁱⁱ



“lithium metal batteries” are generally primary (non-rechargeable) batteries that have lithium metal or lithium compounds as an anode. They are generally used to power devices such as watches, calculators, cameras, temperature data loggers.ⁱⁱⁱ



The new regulations from 1 April 2016

Lithium ion cells and batteries shipped by themselves (UN 3480) (not contained in or packed with equipment):

- Are forbidden for transport as cargo on passenger aircraft.
- Cargo Aircraft Only label, in addition to existing labels.
- If shipped by themselves by cargo aircraft, they must be shipped at a state of charge of no more than 30% of their rated capacity.^{iv}

Lithium metal cells and batteries shipped by themselves (UN 3090) (not contained in or packed with equipment):

- Are forbidden for transport as cargo on passenger aircraft.
- Cargo Aircraft Only label, in addition to existing labels.^v

So what does that mean for us?

To get around the regulations, and ship lithium batteries by themselves on passengers aircrafts, there’s only one way, and that’s to ship under the exemption issued by all states concerned.^{vi} E.g. by the 109th from Kangerlussuaq to EastGRIP. But as we or your shipping agency, most possibly does not have any state authority, this is not an option for us. Which means, that we must always ship the lithium ion batteries and lithium metal batteries as packed in /or with equipment.

- Or easier yet, send them by Ship.

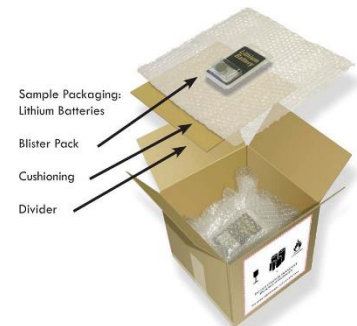
Figure 1, Example of lithium batteries packed with equipment, in the original packaging.



Packaging of the lithium batteries

If you have lost the original packaging or you plan on carrying the lithium batteries as luggage (info next p.). It's important to remember, that one of the major risks associated with the transport of batteries and battery-powered equipment is short-circuit of the battery as a result of the battery terminals coming into contact with other batteries, metal objects, or conductive surfaces.^{vii}

- Packaged batteries or cells must be separated in a way to prevent short circuits and damage to terminals.
- Cover the poles with tape.
- Must be packed in a strong outer packaging (preferable the original packaging) or contained in equipment (in preferable the original packaging).



As figure 2 and 3 shows for both lithium ion batteries and lithium metal batteries, packed in or with equipment, there's a maximum of 5 kg pr. Package on passenger's aircrafts.

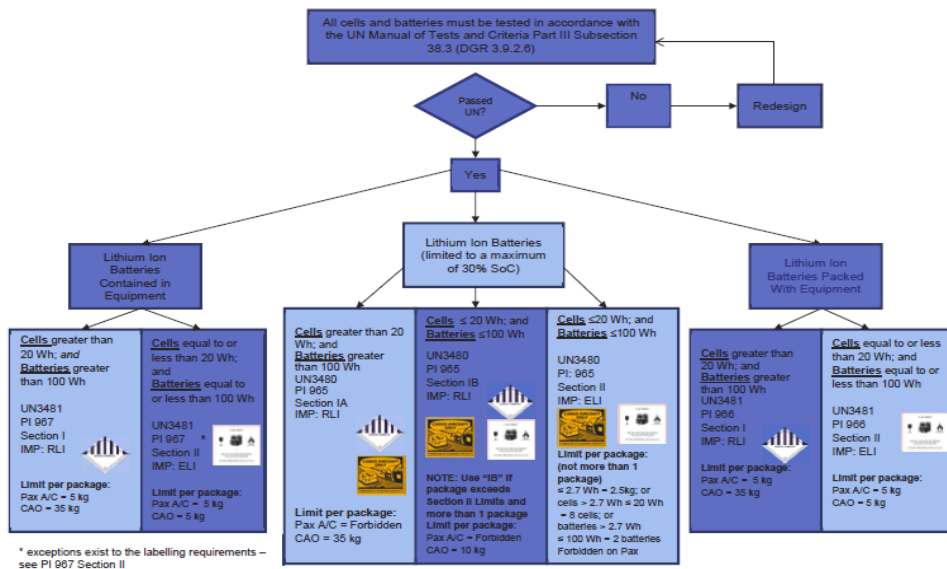


Figure 2, lithium ion batteries, <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p.5.

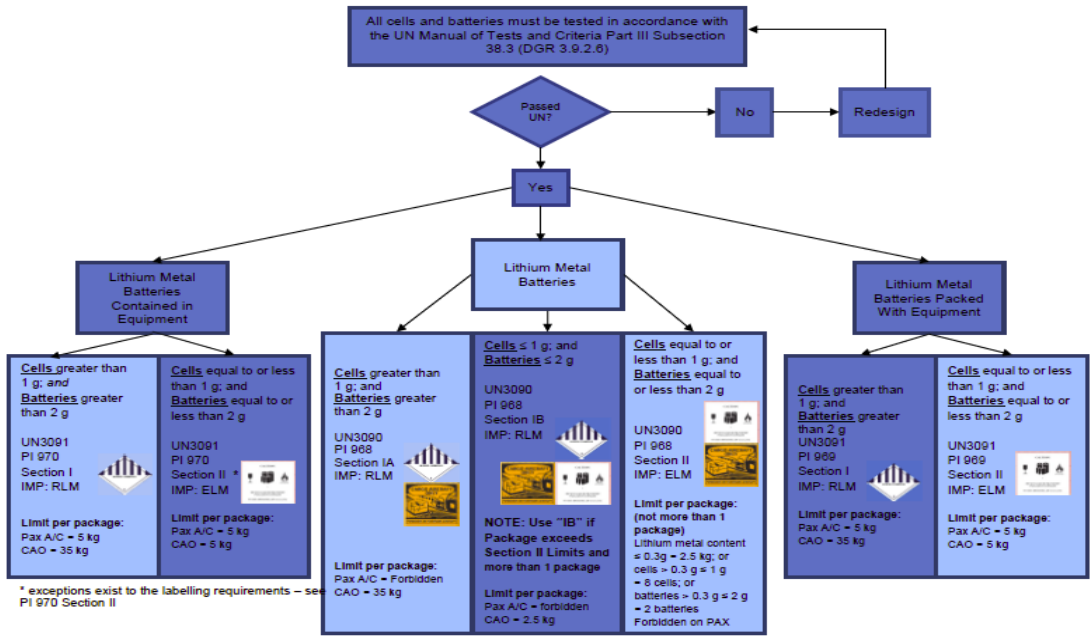


Figure 3, lithium metal batteries, <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p.5.

To carry lithium batteries as luggage

To carry lithium batteries as luggage is actually easier than to ship them as cargo. But also here, there’s a few things to be aware of, more than the packaging. The different Airlines, have different regulations, but one thing they all agree on, it’s safer to have lithium batteries in your hand luggage, than in your checked in luggage. Here’s an example from the internet why:

Figure 4, <https://www.easa.europa.eu/easa-and-you/passengers/dangerous-goods>

The point is, that for the safety of us all, please don’t put spare lithium batteries in your checked in luggage (or any undeclared boxes).

IATA distinguish between small (up to 100 Wh), medium (up to 160 Wh) and large lithium batteries (more than 160 Wh).^{viii} The small and medium batteries are ok to check in with your equipment, and there's no limit for bringing small batteries in your hand luggage, and finally you can bring two medium sized batteries in your hand luggage.

What's your type?
Information for Airline passengers on Lithium Batteries

For more information contact your airline or visit:
www.iata.org/dangerousgoods

Watt Hour Rating (Wh) or (L) Content ⁱ	Configurations	Carry-on Baggage	Checked Baggage	Operator Approval
≤100 Wh (L)	In Equipment Spares (No Limit)	Yes Yes	Yes No	No
>100 to ≤160 Wh	In Equipment Spares (Max 2)	Yes Yes	Yes No	Yes
>160 Wh	Must be presented and stored as Cargo in accordance with the IATA Dangerous Goods Regulations			

Examples of Lithium Batteries

- Small Lithium Batteries and Cells** include mobile phone batteries, watch batteries, MP3 player batteries and most original laptop batteries. The maximum rating for these batteries is 100 watt-hours (Wh).
- Medium Lithium batteries and cells** include larger batteries and cells – examples include some scheduled file batteries for laptop computers, and batteries used by audiovisual professionals. A "medium" battery provides between 100 and 160 watt-hours of power.
- Large lithium batteries and cells** are primarily those used in industry. A large rechargeable battery provides over 160 watt-hours of power. Large batteries may be found in some electric and hybrid vehicles, as well as mobility devices and scooters.

Note: Other commercially available types of batteries such as Ni-Cad, Nickel cadmium, and alkaline can be carried safely in either checked or carry-on baggage provided they are adequately protected against short circuit.

Figure 5,
<http://www.iata.org/whatwedo/cargo/dgr/Pages/dgr-guidance.aspx>, lithium battery passenger pamphlet

But as mentioned above, the different Airlines have different regulations, but for example both British Airways and Air France, will also allow you to bring two medium sized lithium batteries of up to 160 Wh in your hand luggage:

- https://www.airfrance.fr/common/image/pdf/en/Bagages_batterie_lithium_en.pdf
- http://www.britishairways.com/cms/global/pdfs/lithium_battery.pdf

So before you ship lithium batteries as cargo, which will cost you a lot extra, due to the dangerous goods/hazmat processing fee, then check the guidelines for hand carrying your devices and spare batteries with you on the aircraft.

ⁱ <http://www.unece.org/trans/danger/danger.html>

ⁱⁱ <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p. 2.

ⁱⁱⁱ <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p.2

^{iv} <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p.2

^v <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p.2

^{vi} <http://www.iata.org/whatwedo/cargo/dgr/Pages/lithium-batteries.aspx>, Lithium Batteries as Cargo in 2016 Update III p.1

^{vii} <http://www.iata.org/whatwedo/cargo/dgr/pages/lithium-batteries.aspx/>, IATA Lithium Battery Guidance Document – 2016 V2, p.9

viii <http://www.iata.org/whatwedo/cargo/dgr/Pages/dgr-guidance.aspx>, lithium battery passenger pamphlet