

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

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

There are heavy regulations regarding shipping anything listed as DGR/HAZMAT and if not following these regulations, we can get in real trouble and heavily fined. Therefore, when you plan to ship cargo by Road, Rail, Ship or Air, it is important that you check your cargo for any of the left or similar danger symbols.

Another thing you should look out for are the below shipping labels (divided by the UN Model Regulations classification of danger).



CLASS 1 Explosives:
Divisions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6



CLASS 2 Gases:
Divisions 2.1, 2.2, 2.3



CLASS 3 Flammable Liquid



CLASS 4 Flammable Solid, Spontaneously Combustible, and Dangerous When Wet:
Divisions 4.1, 4.2, 4.3



CLASS 5 Oxidizer, Organic Peroxide: Divisions 5.1 and 5.2



CLASS 6 Poison (Toxic), Poison Inhalation Hazard, Infectious Substance: Divisions 6.1 and 6.2



CLASS 7 Radioactive



CLASS 8 Corrosive



CLASS 9 Miscellaneous Hazardous Material



§172.448

If your goods or cargo is marked with any of these or any other hazardous labels, then you need to handle and ship them as DGR/HAZMAT. Which means that the packaging, labelling and paperwork, must be, handled by certified personnel e.g. the shipping agency that you plan to use, the logistical department at your institution, or the EastGRIP logistical group.

Important info: If you have found an old box with any of the shipping labels above, and you want to re-use it for shipping something else not hazardous, then you **MUST** remove the old labels, as the box will otherwise be considered as containing hazardous materials. Which can end up giving you a penalty.

It is very good to know that it is allowed to re-use undamaged shipping boxes. DGR/HAZMAT boxes are expensive.

Lithium Batteries

Lithium batteries have become very restricted to ship by AIR due to, a series of incidents involving fires on aircraft from shorted lithium batteries. All modern electronics, such as cell phones, laptops, cameras etc. contain lithium batteries.

IATA distinguishes 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. **Generally found in mobile telephones, laptop computers, etc.**



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



Lithium batteries are classified in Class 9 – Miscellaneous dangerous goods as:

Loose batteries: UN 3090, Lithium metal batteries, or UN 3480, Lithium ion batteries (**forbidden for transport as cargo on passenger aircraft IATA**).

Or, if inside a piece of equipment or packed separately with a piece of equipment to power that equipment as: UN 3091, Lithium metal batteries contained in equipment, UN 3091, Lithium metal batteries packed with equipment, UN 3481, Lithium ion batteries contained in equipment, or UN 3481, Lithium ion batteries packed with equipment (**less restricted IATA**).



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

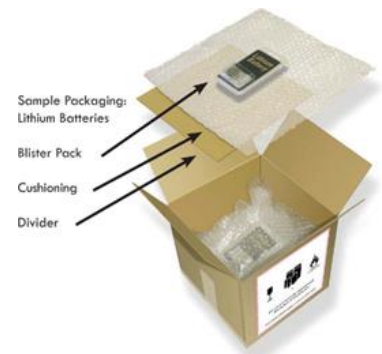
So what does that mean for us?

- 1). Find the MSDS (Manufacturers Safety Data Sheet) or SDS (not old version) and see under **Section 14: Transport information**, if/how your lithium batteries can be, shipped.
- 2). As UN 3090, Lithium metal batteries and UN 3480, Lithium ion batteries are, forbidden for transport as cargo on passenger aircraft. Always consider to ship as packed in /or with equipment. However even this has become complicated.
- 3). Consider to send by Ship (IMDG less restricted), or carry as hand luggage (see next page).

Packaging of the lithium batteries

It is important to remember, that one of the major risks associated with the transport of lithium 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.

- 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).



To carry lithium batteries in your carry on hand luggage



To carry lithium batteries as carry on hand luggage is often easier than to ship them as cargo. However, here is also a few things to be aware off. One thing is that the different Airlines, have different regulations, so check their homepage before you travel with the lithium batteries.

A thing they all agree about; “it is safer to have lithium batteries in your carry on hand luggage, than in your checked in luggage.”



Therefore, you will also find that you can actually carry quite a lot of lithium batteries with you on the plane.

<https://www.easa.europa.eu/en/domains/passengers/dangerous-goods>

IATA distinguishes between small (up to 100 Wh), medium (up to 160 Wh) and large lithium batteries (more than 160 Wh):

Wh rating or lithium metal content	Configuration	Carry-on baggage	Checked baggage	Operator approval
≤ 100 Wh / 2g	In equipment (PED or PMED)	Yes (max 15 PED/PMED ¹)	Yes	No ¹
	Spare battery(ies)	Yes (max 20 spare batteries ²)	No	No ²
>100 to ≤160Wh	In equipment (PED or PMED)	Yes	Yes	Yes
	Spare battery(ies)	Yes (max 2 spare batteries)	No	Yes
>160Wh	Must be prepared and carried as cargo in accordance with the IATA Dangerous Goods Regulations			
> 2g ≤ 8g	In equipment (PMED only)	Yes	Yes	Yes
	Spare batteries for PMED	Yes (max 2 spare batteries)	No	Yes

Watt-hour rating, expressed in Watt-hours (Wh), the Watt-hour rating of a lithium cell or battery is calculated by multiplying the rated capacity in ampere-hours by the nominal voltage.

1. Each person is limited to a maximum of 15 PED. The operator may approve the carriage of more than 15 PED.

2. Each person is limited to a maximum of 20 spare batteries of any type. The operator may approve the carriage of more than 20 batteries.

www.iata.org/contentassets/6fea26dd84d24b26a7a1fd5788561d6e/passenger-lithium-battery.pdf

Help: Marie Kirk has IATA, IMDG, DOT (49 CFR) and U.S. Air Force certification (AFMAN 24-604), and can help you with any questions that you might have. However, it is important to stress that Marie cannot certify cargo from your country of origin to Denmark/Greenland, as she needs to be able to physically inspect the cargo.