

# Flying Typers™

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**LITHIUM**

**LOGISTICS**

**RECENTLY RELEASED ACCIDENT REPORT ON UPS FLIGHT 006 MIGHT SERVE AS A WAKE-UP CALL TO INDUSTRY AND PRBA TO PUT TIGHTER REGULATORY REINS ON THE ISSUE OF SHIPPING LITHIUM BATTERIES.**

There is hope that the recently released accident report regarding UPS flight 006, which crashed on September 3rd, 2010, in DXB and cost the lives of two U.S. aviators, might serve as a wake-up call to the industry, and in particular to the brakemen from The Rechargeable Battery Association (PRBA) obstructing and hindering all measures to put tighter regulatory reins on the issue of shipping lithium batteries.

In all fairness it must be said that by and large both the regulatory authorities have failed to address the surge in retail shipping and reverse logistics involving consumers and sparked by Internet-based distribution in recent years.

The exception is the recently introduced ANPRM HM-253 by US-PHMSA and the liberalization of DG within UK domestic mail.

## PROBLEM IS SYSTEMIC

However, shippers have failed to implement existing standards and logistic providers have decided to turn a blind eye to what they know about the merchandise to be shipped.

Sure enough, any retail merchandise shipper striving for full compliance with existing national and international dangerous goods requirements would find himself at a considerable commercial disadvantage which would, more likely than not, put them out of business soon, meaning this is mainly a regulatory issue that should be addressed by industry outreach programs, education, training, and, last but not least, enforcement.

## LAMP ON REBUY & EBAY SHIPMENTS

Firstly, have you heard about reBuy?

In Germany you can sell off your electronic gadget, or you can buy a semi-new gadget online via reBuy for less than it costs new.

Still, the issue is that shipping (both from reBuy to you, and also when you ship merchandise back to reBuy) must be in compliance with dangerous goods requirements.

That, however, is usually not the case.

When selling gadgets to reBuy, you go through an identification and self-appraisal process of your used gadget on their website, at the end of which you're given a preliminary purchase price.

If you agree, you can print the shipping labels and get the parcel picked up either at your home or business address or drop it off at any German post office or Hermes Logistics Depot.

However, although reBuy has an extensive FAQ section on their website, the search terms "Dangerous Goods" or "Lithium Batteries" yield no results.

There is not even the basic advice to protect gadgets against accidental activation, protect loose batteries against short circuits, or avoid shipping obviously malfunctioning batteries.

## CASTING A WIDER NET

The simple truth is that owing to PRBA's successful initiatives at removing regulatory burdens in commerce, most gadgets shipped do not require bearing the so-called "Lithium – Battery Handling Label" or any indicator on the shipping documents, as long as there are no more than four cells or two batteries of the "excepted" type (batteries 100Wh or less, cells 20Wh or less) contained within the gadget.

It seems to be largely ignored that they must still conform to the so-called "General Requirements" (which are all based on the "UN Model Regulations" in the current 17th Edition) under all international and European modal regulations; also, for the U.S., 49 CFR has to a great extent been harmonized with the UN Model Regulations.

## "EXPLAINING GENERAL REQUIREMENTS"

General Requirements" (which are all based on the "UN Model Regulations" in the current 17th Edition) under all international and European modal regulations:

The following requirements apply to all lithium ion or lithium polymer cells and batteries:

(a) each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.

(b) However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the 5th revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

Note: Batteries, including those that have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.

(c) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e);

(d) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire, or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons).

(e) waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of origin and the State of the operator;

(f) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

Where a gadget or other device is shipped with the battery not installed but contained in the same outer packaging, the “Lithium Battery handling label” is always mandated.

## PRACTICES IN REAL TIME

Now how does all of this work in practice?

From a consumer’s point of view, it works just fine. From a regulatory point of view, it couldn’t be worse.

## TEST SHIPMENTS TELL THE TALE

To test all of this out in real time and regular practice, *FlyingTypers* Germany ordered a Samsung Galaxy IV mobile phone from reBuy that arrived active (on) when received. No instructions in regard to dangerous goods related requirements were made available in case of reshipping.

We then tried eBay and ordered a Blackberry Bold 9700 Li-Ion battery and a Samsung Galaxy IV Li-Ion battery from two different professional sellers. In both cases the devices arrived via eBay in simple envelopes bearing stamps, which means first, the required sturdy outer packaging was not supplied for the shipment as required, secondly, the mandatory Lithium – Battery handling label was missing (always required when batteries are shipped as such) and thirdly, the shipping of Lithium batteries by mail is not permitted in Germany.

## ARE DG SHIPMENT MISHANDLES COMMON?

Do not assume the above are exceptions to the rule.

There are hundreds of professional sellers for these commodities, and most of them offer “free shipping by German post,” both nationally and internationally.

Also, do not assume this is a German problem. It’s definitely not. As said above, very few regulators have tackled this issue, and even in the U.S. regulatory guidance addressing these issues is still in the stage of an AN-PRM.

As for shipping any form of Lithium battery by airmail, the shipping of batteries “as is” is always illegal, to say it clearly. Not being in compliance would sure sound better, but given the present regulatory framework, it’s just plain illegal, period.

Shipping so-called “excepted” batteries installed in consumer electronics in the mail is possible only where all the postal organizations involved in such transport have gotten authorization from their respective national competent authorities. This means that shipping such items domestically within the U.S. is legal, or shipping it from Hongkong directly to the U.S. is legal, but neither from the U.S. to Germany nor from Hongkong to Germany, since DPWN – Deutsche Post neither holds such approval nor have they applied for it.

Since within Europe, regulations aiming at international trade and transport tend to be harmonized (for road transport the ADR framework must be applied while rail falls under RID and inland waterway under the ADN), it is fair to say that this problem exists in most EC states where unspecific regulations permit otherwise. However,

such specific regulation—as in the UK—can address domestic shipping only.

This means a UK citizen may use the UK’s Royal Mail to ship certain DG items domestically in compliance, but the very same items may not be shipped to other European (or non-European) states.

This somehow contradicts the idea of free trade and borderless provision of services within Europe, but non-enforcement of existing regulations can hardly be the answer.

## AIRBAGS SHIPPED WITHOUT WARNINGS

Some professional sellers seem to make a good living by selling used car spares, namely steering wheels with airbags.

While the verbiage employed on their eBay sites suggest they’ve at least heard about dangerous goods (“all return shipments must be made using the original performance-tested packaging materials”) they’re utterly on the wrong track.

Where professional sellers specialize in the sales of certain commodities, such as paint-related products, cell-phone batteries, or car spares and have ratings in excess of several thousands, sometimes hundreds of thousands, this can hardly be seen as an exception but rather as willful non-compliance as a business model:

First of all, airbags contain explosives and in Germany are subject to Paragraph 20 of the German Explosives Act, which requires personnel background checks and subject matter training for anyone handling or using explosives.

Second, DG training would be required for any shipper or re-shipper of such merchandise, and a performance tested packaging, once opened, is usually unfit for re-use—it definitely is where an outer fibreboard box had been used since these are not reusable as a means of dangerous packaging by definition.

Since DG classification of explosives also depends on packaging, any modification or reuse of packaging materials will result in something the authorities will see as illegal handling of explosives, which may make your new bargain steering wheel way more expensive than you anticipated.

## OTHER DANGERS NEED ATTENTION

Sulphuric Acid (Battery Acid), Ammonium Nitrate-based fertilizer (the stuff which, together with engine oil, makes an explosive stronger than TNT and was used by Timothy McVeigh in the Oklahoma City bombing in 1995), disposable lighters, lighter refills—anything which, according to subsection 2.2 of the IATA Dangerous Goods Regulations, should trigger a “potential hidden dangerous goods” inquiry—can be conveniently found on eBay.

In Germany most auctions from professional sellers come with that handy DPWN/DHL app which calculates your shipping costs. Hard to believe, then, that logistics providers really have no knowledge about the dangerous nature of the merchandise being transported moving through their channels.

## GOOD NEWS

Still, there is the proverbial silver lining on the horizon. Speaking of consumer electronics, a big problem are gadgets which do not allow the removal of the battery, since this basically renders illegal any transport of a non-functioning device for the purpose of repair. Just recently a large manufacturer of such devices has decided to contract with a compliance provider to obtain the required special permits to transport such “defective” items within certain European states, so obviously, the industry is catching on slowly but steadily.

On the other hand, a European manufacturer of large Lithium – Ion batteries (~ 2.5 kWh) was unable to provide a test certificate when asked to produce such documentation by a competent European authority. It turned out that they had tested the cells only, but not the batteries, so think twice before pointing fingers at shippers whose cargoes with Lithium batteries got investigated in the UPS006 crash.

## WHEN SHIPPING COULD MEAN JAIL TIME

So what does German law have to say?

Paragraph 328 of the German penal code reads:

“Prison up to five years or monetary fines will be imposed where a person, under gross violation of administrative duties, engages in the transport, shipping, packing, unpacking, loading, or unloading or receiving of dangerous goods or makes such dangerous goods available to others and by such action endangers another person’s health, animals not belonging to him or someone else’s possessions of not insignificant value.”

According to the law, even an attempt is punishable.

In the case where an offender is acting in negligence, the sentence is up to three years of incarceration or monetary fine.

## SO WHAT’S NEXT?

The way we see things, since everybody has a stake in ensuring that no more airplanes are brought down because of mishandled lithium batteries, getting the word out and forging alliances with industry, government, and all stakeholders—including manufacturers—is job one from now on.

*FlyingTypers* thinks DG needs to position itself front and center as these issues are discussed and brought into sharp focus at every industry event.

We have learned quite a bit about the way things work just by shipping some electronics to ourselves.

That experience was a real eye opener.

Just imagine what we can do to advance better understanding of safer DG shipping practices if we worked together.

*Geoffrey/Jens*