



# UPS Airlines Lithium Batteries in Air Transport

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# Why are Li Batteries a challenge in Air Transport?

## Risk of Fire or Explosion, If:

- Damaged
- Short circuited
- Poorly manufactured

## Very Intense Fires:

- Halon suppresses ion fires – under certain conditions
- Gases vented are flammable
- Pressure pulses are significant
- Halon does not suppress metal fires

## Extreme Temperatures:

- Ion fires can peak at 1200°F
- Metal battery fires burn even hotter
- Fire may propagate from one cell/battery to another



# Why are Li Batteries a challenge in Air Transport?

## Other factors leading to safety risks:

- Low cost/low quality batteries
- Counterfeit
- Noncompliance with the regulations:
  - Size of battery
  - Number of batteries per package
  - Improper packaging
  - Undeclared
- Regulatory ignorance



# What are the regulators doing?



- 2004 - U.S. banned lithium metal battery only shipments from PAX aircraft
- 2013 - ICAO introduced limits to small lithium batteries (no more than 8 cells or 2 batteries per package)
- 2015 - ICAO banned lithium metal battery only shipments from PAX aircraft
- 2015 - U.S. regulations harmonized with ICAO lithium battery regulations for air shipments
- Current - ICAO working on requiring performance packaging that would keep any lithium battery event within the package
- Current - ICAO is also evaluating whether small batteries should be overpacked
- Attention continues to be drawn to the need for education and enforcement, especially in parts of the world where counterfeit batteries and non-complaint shipments are most prevalent



# What are the air carriers doing?

- Around 40 carriers have introduced self imposed bans on the carriage of lithium ion batteries (many as a result of aircraft manufacturer recommendations)
- Some require preapproval of shipments
- Conducting risk assessments
- Taking steps onboard aircraft to reduce risk (e.g. only loading in lower compartments, separating from other cargo, etc.)
- Issuing lithium battery communications to customers
- Operator risk mitigation guidelines were developed by IATA



# How has UPS approached the li battery challenge?

- Continuing shipper and employee education efforts
- Approval program for lithium metal (battery only) shippers
- High level surveillance program
- Modifications to lithium metal and lithium ion territories served
- Risk assessment
- Significant efforts onboard the aircraft



# Flight deck improvements



# Advice for shippers

- Know the regulations, ensure your people are trained and current
  - Regulations are very dynamic – stay informed!
- Know where your batteries come from
  - Be wary of counterfeit
  - Do they have UN 38.3 test reports or other legitimate certification?
  - Does the battery manufacturer have ongoing quality assurance efforts?
- Know your carriers' policies
- Have a question? Call us!
  - 1-800-554-9964
  - [www.ups.com](http://www.ups.com)





Thank you

