



AIR LINE PILOTS ASSOCIATION INTERNATIONAL

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Washington, DC 20590-0001

Comments Submitted Electronically

Subject: Docket No. PHMSA-2009-0095 (HM-224F), *Hazardous Materials, Transportation of Lithium Batteries*; Request for Additional Comments on January 7, 2013

Dear Sir/Madam:

The Air Line Pilots Association, International (ALPA), representing the safety interests of nearly 51,000 professional airline pilots flying passenger and cargo aircraft for 35 airlines in the United States and Canada, appreciates the opportunity to provide additional comments on the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) Notice of Proposed Rulemaking (NPRM), originally published in January 2010, concerning the transportation of lithium batteries. We are specifically commenting on PHMSA's request for additional input as to whether to permit shippers and carriers to choose between compliance with the existing Hazardous Materials Regulations (HMR's), or compliance with the International Civil Aviation Organization's (ICAO's) Technical Instructions 2013-2014 edition, when transporting batteries domestically by air.

GENERAL

The premise of the NPRM, which is to ask regulated parties whether they wish to abide by a higher standard or a lower standard, is very unusual and of questionable appropriateness. The U.S., represented by the Federal Aviation Administration (FAA) and PHMSA, actually led the discussions at ICAO last year that resulted in the creation of the new provisions in the Technical Instructions that are the subject of this NPRM. For the U.S. (i.e., PHMSA) to now signal that it is prepared to back away from the rules that it helped to create casts significant doubt on the government's commitment to addressing known aviation risks at a time when lithium battery dangers are a topic of domestic and international interest and concern. The U.S. has historically led the world in aviation safety advances, and that leadership has helped result in the creation of the safest mode of mass transportation in history. We urge FAA and PHMSA to protect this important status and not relinquish it to another ICAO state(s).

The NPRM solicits information about costs and benefits; it is ALPA's view that there are costs to the airlines associated with the current HMRs that the new provisions in the ICAO Technical Instructions will help alleviate and airline revenue benefits to be gained by their implementation, as are described below. The airlines generate revenue and cost information related to the carriage of hazardous materials as cargo. ALPA does not have access to this proprietary data, but we can and do identify pertinent areas of costs and revenues herein.

ALPA feels strongly that PHMSA should require shippers and carriers to comply with the provisions of the ICAO Technical Instructions 2013-2014 edition when transporting batteries domestically by air. While ALPA has argued for even greater safety standards in response to previous requests for comments, the new ICAO provisions represent important safety advances and reduce the risk associated with shipments of lithium batteries as air cargo. As a signatory to the Chicago Convention in 1947, the United States is expected to harmonize domestic regulations with ICAO provisions. Annex 18 to the Convention on International Civil Aviation specifically recommends that *"In the interests of safety and of minimizing interruptions to the international transport of dangerous goods, Contracting States should also take the necessary measures to achieve compliance with the Annex and the Technical Instructions for domestic civil aircraft operations."* ALPA supports this recommendation and strongly feels that compliance with the ICAO provisions for the transportation of lithium batteries both internationally and domestically should be mandatory.

The greatest risk in the transportation of lithium batteries is from large quantities of batteries loaded together. While the new ICAO provisions do not address batteries in equipment, nor do they provide stowage or quantity limits for aircraft cargo compartments, they do incorporate new requirements for packages containing more than 8 cells or 2 batteries. These requirements include training for the shipper and the operator, dangerous goods labels, acceptance checks, inspection prior to loading and after unloading, and inclusion on the information provided to the pilot-in-command. By requiring these provisions for shipments of more than 8 cells or 2 batteries, it was intended that large shipments of lithium batteries would be treated as fully regulated dangerous goods, while providing regulatory exemptions for small shipments.

Fully regulating large lithium battery shipments would have a significant, positive effect on flight safety, and reduce the costs associated with accidents and incidents in these ways:

- The training provided to shippers and operators would significantly reduce the likelihood of an improperly prepared shipment, which has been identified as the cause of the majority of incidents involving lithium batteries.

- Dangerous goods labels would alert everyone in the transportation chain to the potential hazard of large lithium battery shipments, and possibly prevent a damaged shipment from being loaded on an aircraft.
- Acceptance checks and inspection prior to loading and after unloading would provide another opportunity to detect improper or damaged shipments, preventing an incident.
- The inclusion on the information provided to the pilot-in-command would alert the flight crew to the presence of the shipments, providing valuable information that could be very useful in helping the flight crews respond to an in-flight emergency. This information could improve the crew's decision-making process, the selection of the most appropriate diversion airport based on the nature of the emergency, and create a greater chance for preservation of life, cargo and the aircraft. It would also assist the emergency responders who are charged with saving lives and putting out fires aboard aircraft carrying lithium batteries.
- Fewer accidents and incidents involving the carriage of lithium batteries as cargo would also result in mitigating the costs that are attributable to physical harm to airline employees, damaged cargo, delayed flights, aircraft and equipment taken out of service for repairs, loss of equipment and aircraft hull losses.
- Further, failure to harmonize domestic operations with the ICAO technical instructions for international operations would result in an increased cost burden on US airlines by introducing two different shipper standards that the airlines would be required to accommodate and implement.

Additionally, both the FAA and Boeing have issued recommendations that lithium batteries be stowed in a cargo compartment equipped with fire suppression (i.e., a Class C Compartment). In a Safety Alert to Operators (i.e., SAFO 10017), dated October 8, 2010, the FAA recommended that "bulk shipments of lithium batteries [be stowed] in Class C cargo compartments or in locations where alternative fire suppression is available." Similarly, in a Multi-Operator Message (MOM-MOM-12-0356-01B) dated May 22, 2012, Boeing supported the FAA recommendations, specifically calling on operators to stow batteries in a cargo compartment with fire suppression and to provide notification to the flight crew. Without making the new ICAO provisions mandatory for shippers, operators would not be able to comply with these important safety recommendations from the FAA and Boeing. In order to stow batteries in a Class C compartment and provide notification to the flight crew, the operator must be aware of their presence, which is only possible when the shipments are identified as fully regulated dangerous goods.

If the U.S. does not harmonize with ICAO 2013-2014 Technical Instructions, the FAA would be unable to provide enforcement even for international shipments. While compliance with the ICAO Technical Instructions is required for international shipments, actual enforcement cases

are brought using the United States Code of Federal Regulations (CFR). Without provisions in the CFR corresponding to the ICAO provisions, the FAA would be unable to cite a shipper with a violation. Specifically, Chapter 4, Section 15c (2) of FAA Order 21503B states that "Failure by an offeror to comply with the ICAO TI generally constitutes a violation of 49 C.F.R. § 171.11. However, if the offeror violates a provision of the ICAO TI for which there is no parallel requirement in 49 U.S.C. or 49 C.F.R., no enforcement action may be taken." The inability to enforce the ICAO provisions for even international shipments would increase the likelihood of an incident or an accident, increasing costs for U.S. operators.

Another problem would be caused by the latitude that shippers and carriers would have, as proposed in the NPRM, to hop scotch from HMR to ICAO rules on a highly irregular basis (e.g., weekly, daily, package-by-package, customer-by-customer, or other). Not only would FAA inspectors be hard pressed to keep track of which shipments are supposed to be declared and which are not, it would undoubtedly lead to significant confusion and errors during the shipping process. Further, the pilot-in-command would be informed of one shipment of lithium batteries carried onboard under ICAO rules, and not informed of an identical shipment of batteries carried onboard under the HMRs. In fact, the proposals in the NPRM could result in the bizarre situation where a single package of ten lithium batteries was fully regulated under the ICAO provisions and included in the information given to the pilot-in-command, but was placed on a pallet of thousands of lithium batteries not covered by those provisions. This level of inconsistency and confusion would reduce safety margins, increase the potential costs of incidents and accidents, and jeopardize the correct response by flight crews and emergency responders to an in-flight incident.

Further to this point, if not mandated to comply with the new ICAO provisions, U.S. aircraft operators would be permitted to carry tens of thousands of lithium batteries without the flight crew being made aware of their presence, a situation that the international dangerous goods community has deemed unacceptable. Failure to mandate these provisions domestically would result in a system where foreign carriers flying into the United States would be held to a higher safety standard than U.S. carriers. ALPA finds this situation unacceptable and urges PHMSA to immediately harmonize with the ICAO Technical Instructions.

Provided as an attachment to these comments is a listing of accidents and incidents in which lithium batteries being transported as cargo directly caused or contributed to the events. The kinds of costs associated with two types of events are presented below.

Aircraft accident with fatalities, hull loss:

- Insurance payouts to survivors of the deceased
- Costs associated with hiring replacement employees

- Costs associated with harming persons and/or property on the ground
- Loss of the aircraft
- Loss of revenue from an aircraft taken out of revenue service
- Physical loss of the destroyed cargo
- Cost of hazardous material clean-up
- Legal costs associated with lawsuits stemming from the accident
- Potential loss of company value due to reduced stockholder confidence

Onboard battery fire which results in a diversion, with no fatalities or injuries:

- Additional handling and other related costs associated with shipping cargo that failed to make connections
- Loss of revenue due to additional flights delayed/cancelled due to a diversion
- Additional on-site storage and handling costs
- Additional crew costs due to regulatory limits on number of hours flown in a duty day
- Costs of hotel rooms and other related travel expenses
- Cost of the diversion itself with extra fuel, ramp, handling and other expenses
- Costs associated with extending work hours for airline and non-airline employees
- Cost of aircraft and equipment taken out of service for repairs

Finally, the increased costs imposed on shippers for complying with the new provisions in the ICAO Technical Instructions must be kept in perspective. If a shipper preparing a package of a hundred lithium batteries also offers a single can of flammable paint to an airline for transport, the package containing the paint must comply with the provisions for training, packaging, labeling and pilot notification for hazardous materials. Under the HMRS, however, none of those safeguards would apply to the battery shipment. The regulatory exemptions for small batteries were never meant to apply to large shipments of batteries, and the new ICAO provisions correct this oversight. ALPA feels strongly that the regulatory burden for shippers of lithium batteries should more closely match their risk in transportation, and that there should not be more regulatory relief granted to the shippers of lithium batteries than is afforded to shippers of other regulated goods, such as flammable paint.

It should be noted that PHMSA's proposal to permit shippers and carriers to choose which rules they will follow—whether ICAO Technical Instructions or the HMR—will inevitably create undue financial pressure on those who might otherwise wish to follow the ICAO standards to abandon those desires and revert to lesser HMR standards. This rule is rooted in safety, and as such it should not be allowed to be subverted to create an unlevel playing field that selectively creates monetary winners and losers and strips away incentives to expand

minimal safety margins. In order to be equitable to all both on safety and financial grounds, there should be a single standard for all to follow.

COMMENTS ON THE QUESTIONS

In response to the publication of the notice requesting additional information in the January 7, 2013 *Federal Register*, ALPA offers the following comments on the questions posed by PHMSA:

1. Do you anticipate any unintended consequences for shippers or carriers if PHMSA authorizes the use of the 2013–2014 ICAO Technical Instructions as an optional method of compliance with the HMR, but does not issue a final rule revising the HMR to require domestic shipments of lithium batteries to comply with the lithium battery provisions specified in the 2013–2014 Edition of the ICAO Technical Instructions? Please note that, HM–215L final rule allows compliance with the current HMR to be met through voluntary compliance with the ICAO Technical Instructions.

ALPA believes that making compliance with the ICAO Technical Instructions voluntary would have the unintended consequence of mandating a lower safety standard for domestic shipments than would be required of foreign operators flying into the United States. By failing to address concerns with large lithium battery shipments on aircraft, the potential for a major incident or accident within the United States would be increased.

2. As adopted in the HM–215L final rule, which individuals, and how many, will chose [sic] to comply with the ICAO Technical Instructions 2013–2014 Edition (except those specified in §§ 171.24(d)(1)(ii) and 171.24(d)(1)(iii)) as opposed to the current requirements of the HMR?

While ALPA cannot estimate how many shippers would choose to comply with the ICAO requirements as opposed to the current requirements in the HMR, because the current requirements provide for less expensive shipments, we believe the number would be significant. This would result in a situation where a very sizable percentage of domestic shipments would be carried at a lower safety standard than that mandated for international shipments and foreign operators whose States comply with ICAO. Any cost savings could be offset, however, by lost revenue for the operators due to not having the shipments fully regulated, as well as greater costs associated with a larger number of incidents and accidents.

3. Do you anticipate confusion and/or inappropriately packaged/prepared shipments if PHMSA were to authorize the use of the 2013–2014 ICAO Technical Instructions, but does not issue a final rule revising the HMR to require compliance with the specific lithium battery provisions with those contained in the 2013–2014 Edition of the ICAO Technical

Instructions? If so, which entities would be confused and what specifically would cause confusion? If you believe there will be confusion, under what circumstances and over what period of time would you expect such confusion or errors to occur? Are there ways to mitigate such problems without adding additional regulatory burdens?

Any time there are differences between the ICAO Technical Instructions and the HMR, there is the potential for confusion. Primarily domestic shippers may be unaware of the requirement to comply with the ICAO Technical Instructions for international shipments, resulting in a situation where they place shipments into transportation that do not comply with the ICAO provisions. ALPA believes that the best and most appropriate way to mitigate this confusion is to provide a harmonized regulatory approach and adopt the provisions of the ICAO Technical Instructions 2013-2014 for domestic shipments of lithium batteries by air. Failure to adopt this approach will result in costs associated with having two different dangerous goods regulatory systems with different acceptance documentation and the need for additional training for acceptance personnel.

4. What changes, if any, would be made to shipments and/or operational processes if PHMSA were to require compliance with the applicable provisions for lithium batteries specified in the 2013–2014 Edition of the ICAO Technical Instructions? Specifically, what costs and/or benefits (if any) would result if PHMSA were to publish a final rule that adopts the lithium battery provisions of the 2013– 2014 ICAO Technical Instructions into the HMR? If there would be any costs or benefits, if possible, please provide data to support the comments. As noted above, this final rule would replace the proposals in the January 11, 2010, NPRM.

If PHMSA requires compliance with the provisions of the ICAO Technical Instructions, shippers would be required to comply with the provisions in place in the HMR which govern the shipment of others types of regulated dangerous goods, and which they are already prepared to facilitate. ALPA feels this is wholly appropriate for a commodity that has caused smoke and fire events when shipped by air and which represents a risk in transportation. To the extent that domestic lithium battery shippers also place shipments into international transportation, ALPA feels that the overall additional costs would be minimal. Moreover, any additional costs would be more than justified by the real and significant safety benefits. Adoption of the ICAO provisions would potentially result in fewer incidents and accidents involving lithium batteries, which would ultimately create a cost savings for shippers, operators, and the American public.

5. What are the benefits of allowing shippers and carriers the option to choose between alternative standards, depending on the type of shipment? How do these benefits from

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flexibility compare to the benefits of requiring a single standard? Are there any disadvantages or costs to allowing domestic shipments to follow a standard specific to domestic shipments?

ALPA does not believe that the type of shipment is relevant in determining whether to use the provisions of the HMR or the ICAO Technical Instructions. Regardless of the destination and, therefore, whether domestic or international regulations apply, the shipment will be transported in the same types of cargo holds and on the same types of aircraft. A fire aboard an aircraft is a significant risk at any time. ALPA therefore believes the highest achievable safety standard should apply to all shipments, and that PHMSA should harmonize with the ICAO provisions for all shipments.

CONCLUSION

ALPA has long expressed concern that the risks associated with the transportation of lithium batteries by air are not fully addressed by provisions in the HMR. While we do not believe that the new ICAO provisions go far enough to address the legitimate safety concerns associated with the transport by air of these batteries, they nevertheless represent a real and significant improvement in flight safety. ALPA strongly recommends that PHMSA immediately harmonize with the 2013-2014 Edition of the ICAO Technical Instructions for lithium battery shipments by air. Having done so, PHMSA and FAA should pursue with ICAO further amendments to the Technical Instructions for the purpose of having all lithium batteries shipped by air be classified as dangerous goods, as well as implementing stowage and quantity limits that ensure the safety of the aircraft.

If we can offer further clarification or assistance, please contact me directly at mark.rogers@ALPA.org or ALPA Senior Staff Engineer Rick Kessel (703/689-4202, rick.kessel@ALPA.org).

Thank you for providing ALPA the opportunity to comment on this important NPRM.

Sincerely,



Mark Rogers,
Director, Dangerous Goods Programs

MMR:rk
Attachment

Aviation Accidents and Incidents Involving the Transport of Lithium Batteries

The two aircraft accidents listed below include the transport of lithium batteries as cargo and contributed to their onboard fires:

Accident	Date	Incident Summary
Onboard Fire and landing, Philadelphia International Airport (PHL)	February 7, 2006	<p>A Mc-Donnell Douglas DC-8 landed at Philadelphia International Airport after the crew received a cargo smoke indication in the cockpit during the landing approach. The flight crew evacuated the airplane after landing and sustained minor injuries, and the airplane and most of the cargo were destroyed by fire after landing. Although the source of the fire was never conclusively determined, extensive fire damage was found in cargo compartments known to have held equipment containing lithium batteries.</p> <p>The National Transportation Safety Board subsequently issued six safety recommendations addressing the transportation of lithium batteries by air.</p>
B-747 Onboard Fire, Dubai, UAE	September 3, 2010	<p>Boeing 747-400F departed Dubai International Airport on a scheduled cargo flight to Cologne, Germany. Although the aircraft was carrying over 80,000 lithium batteries, none of the shipments were included on the pilot notification form. Twenty two minutes into the flight, the flight crew advised ATC that the fire warning systems for the cargo compartments indicated an onboard main-deck fire. The crew declared an emergency and requested an immediate return to Dubai, but ultimately crashed several miles from the airport, with the loss of both pilots, the aircraft, and its cargo. While the investigation is ongoing and no source of fire has been determined, the presence of large quantities of lithium batteries likely contributed greatly to the severity of the fire and the loss of the aircraft</p>

The 36 incidents listed below are excerpted from the FAA report, “*Batteries & Battery-Powered Devices, Aviation Incidents Involving Smoke, Fire, Extreme Heat or Explosion*” as of October 9, 2012

	DATE/ SOURCE	TYPE OF BATTERY	DEVICE (if applicable)	AIRCRAFT TYPE (Cargo)	INCIDENT SUMMARY
1.	07-JUNE-2012 DOT 5800.1 FormNo I2012060342	Lithium-ion batteries	N/A	Cargo	Report from United Parcel Service indicated that at its Louisville, KY facility, a package containing 18 approximately 1 ounce lithium ion batteries from 6 various manufacturers melted through their plastic wrap causing the outer package to start burning.
2.	22-April2012 DOT 5800.1 FormNo I201240360	Lithium-ion battery	N/A	Cargo	Air Express International indicated that a packaged opened during the sort at its Erlanger, KY facility. The package contained 17 lithium ion batteries. As one of the batteries was being returned to the package, it shorted out and caught fire. One employee was injured and treated at the facility.
3.	24-MAR-2012 DOT 5800.1 FormNo E2012040410	Lithium-ion batteries	Battery powered device	Cargo	Report from Atlas Air indicated that a package caught fire at its Incheon, Korea facility. The package appeared to contain a lap top computer.
4.	02-MAR-2012 DOT 5800.1 FormNo I2012030493	Lithium battery	N/A	Cargo	Report form Federal Express indicated a fire in a package at its Toluca, Mexico facility. When asked, the consignee reported that he had ordered a lithium battery for a bicycle.
5.	25-FEB-2012 Air Carrier report	Lithium-ion batteries	Lithium-ion battery powered surf board	Cargo	Initial report form Federal Express indicated that a smoking unit load device was discovered at the Memphis, TN airport facility. Inspection revealed the contents of the ULD included a smoking and burning self-propelled surf board.
6.	29-MAR-2011 DOT5800.1 Form	Lithium ion batteries	Battery packs for electric bicycles	Cargo	Initial report from Federal Express indicated that the batteries offered for shipment from Kwun Tong, China to Southampton, England caught fire for an unknown reason at the facility in Tsun Wan, Hong Kong.
7.	21-MAR-2011	Lithium-ion batteries contained in equip. including lithium polymer batteries	Unknown	Cargo	Initial report from Federal Express indicated that the package offered for shipment from Mumbai, India to Shenzen, China was observed to be smoking by a customs official at the facility in Guangahou, China. Subsequent indicated the package contained the batteries.

8.	6-OCT-2010 DOT5800.1 Form and FAA report	Lithium ion battery	N/A	Cargo	Initial report from United Parcel Service indicated that an electric storage acid battery offered for air shipment from Shanghai, China was observed smoking at the facility in Cerritos, CA. Subsequent investigation by FAA indicated that the battery appeared to be an 18.5 Volt, 30Ah (555Wh) Lithium Ion Battery (Lithium Cobalt Oxide (LiCoO ₂)).
9.	28-AUG- 2010 DOT5800.1 Form	CR 123A primary lithium battery in a device	Flashlight	Cargo	Initial report from Fed Ex indicated that the flashlight in a backpack belonging to a jumpseating crewing member caught on fire while at the gate in Memphis, TN. The report indicated that one of the flashlight batteries exhibited signs of thermal runaway causing the fire.
10.	9-FEB-2010 Report from Air Carrier	Lithium metal w/liquid cathode battery	N/A	Cargo	Initial report from United Parcel Service Airline indicated that, subsequent to air transport from Hong Kong, during the local ground portion of the delivery, the truck driver heard a loud pop. First responders were called to the scene. One of the batteries in one of the packages in the shipment ruptured, discharged soot and dislodged other batteries in the package.
11.	25-AUG-2009 Report from Air Carrier	Initial report indicates Lithium-ion battery	GPS tracking device	Cargo	Initial report from Federal Express indicated that a burning and smoking package was discovered at the Medford, MA facility. The package was in route to Seattle, WA. An unsuccessful attempt was made to extinguish the fire by cutting open the package and applying a fire extinguisher. The Fire Department had to be called. Subsequent inspection revealed that two of the devices heated and caused the surrounding packaging to ignite.
12.	15-AUG-2009 Report from Air Carrier	Lithium-ion battery	N/A	Cargo	Initial report from United Parcel Service Airline indicated that a smoldering package was noticed at its Taiwan Hub. The package was transported from Macau, China. Inspection of other packages in the same consignment indicated that similar batteries were offered without terminal protection.
13.	14-AUG-2009 Report from Air Carrier	Lithium metal batteries	e- cigarettes	Cargo	Initial report from Federal Express indicated that upon landing at Minneapolis-St. Paul Airport the crew was alerted to a fire by a warning light associated with a forward compartment. Upon subsequent inspection of the relevant Unit Load Device, numerous packages were discovered with smoke and fire damage.

14.	15-JULY-2009 Report from Air Carrier - DOT 5800.1 Form	Lithium-ion cell phone batteries	Transport- ed loose” in pack- ages without out cell phones	Cargo	Initial report from United Parcel Service Airline indicated that one of several related packages transported from Romulus, MI was discovered to be emitting smoke and smoldering in Santo Domingo, Dominican Republic. Upon inspection, package contained numerous loose lithium-ion batteries with “...no protection of the contact points...” Package documentation indicated, “used batteries - non haz.”
15.	18-JUN-2009 Report from Air Carrier	Lithium-ion	Bicycle Power Device	Cargo	Initial report from United Parcel Service Airline indicated that a burned package was discovered in Honolulu inside a Unit Load Device as it was being unloaded. The package was originally loaded in Philadelphia and was subsequently transported on UPS flight # 2967 from Ontario, California. DOT Form 5800.1 report to follow.
16.	06-AUG-2008 Air carrier report	Lithium ion	Electrical equip.	Cargo	UPS Airline reports that a package containing LED lamps powered by excepted lithium ion batteries was transported on UPS#0213 on 04-AUG from Louisville, KY to Cologne, Germany. It was subsequently observed smoking in a UPS ground sort facility in Copenhagen, Denmark.
17.	27-DEC-2007 Air carrier incident report	Lithium metal (lithium manganese dioxide) <i>House of Batteries prototype, 15-volt, (Five Ultralife 3- volt D cells connected in series). The battery contained 16.65 grams of lithium (3.3 grams per cell).</i>	SSCOR medical suction pump	Cargo	Shipment was submitted to UPS for “2nd day Air” service. After pick-up and ground transportation, the package “spontaneously combusted” on the conveyor at a UPS package sort facility in Cerritos, Calif. An employee put out the fire with a facility fire extinguisher.
18.	15-DEC-2007 Air carrier incident report	Lithium ion/poly- mer for radio- controlled model helicopter	Packed with radio controlled helicopter kit	Cargo flight	A package containing an R/C helicopter kit with lithium polymer batteries was being sent from Hong Kong to the Netherlands. It was discovered emitting smoke at the FedEx sort center in Frankfurt, Germany. The package was brought outside the building and the fire was extinguished.

19.	11-DEC-2007 Air carrier report	Lithium ion/polymer for radio controlled model planes: FlightPower F3A, 5350 mAh, 18.5 V		Cargo flight	A package of lithium polymer batteries for remote control aircraft was being transported by UPS from Argentina to San Marino via Cologne, Germany. At the UPS hub in Cologne, a customs inspector cut into the box with a knife, accidentally cutting into a battery which then caught fire. The battery had a soft plastic exterior without a hard metal shell. A fire alarm was triggered and 400-500 people were evacuated from the facility for 35 minutes. The transport section of the accompanying MSDS stated the batteries were "non-regulated."
20.	30-SEP-07 Air carrier report	Lithium-ion <i>Xiamen Powerlong</i> 3.7v, 4000 mAh and 5200 mAh		Cargo flight	After flying from Hong Kong, a Korea-bound box was emitting smoke upon offload at the FedEx Hub at Subic Bay, Philippines. No flames were seen. The box was removed from the sort. The outer-most box was an overpack containing three inner fiberboard boxes. It's believed each of the inner boxes contained 120 lithium-ion batteries. The fire was contained to one inner box.
21.	08-AUG-2007 Report from German transport officials	Lithium polymer (ion) <i>Arkai</i> 11.1 Volt		Cargo flight	The batteries traveled from Hong Kong to Frankfurt on a FedEx flight. During customs inspection, one of the 440 batteries in the package started to burn.
22.	14-Dec-2006 Report from air carrier	Counterfeit CR123A, lithium metal	Flashlight "Superfire WF-501B"	Cargo flight	During a UPS cargo flight from Sydney, Australia to Guangzhou, China, at 38,000 ft., the crew heard a loud bang. A crewmember found that his flashlight in a bag next to his seat was warm and had a strong odor coming from it. The flashlight was opened and there was soot/residue from burning. One of the two batteries (now determined to be counterfeit) was damaged. Earlier the crewmember had dropped the flashlight about 6 inches into his bag and heard a thump.
23.	11-Nov-2006 Notification by US Customs and CPSC FAA case # 2007WP700045	Lithium ion cell phone batteries		Cargo flight	After being shipped by air from China to the US, some batteries were selected for inspection by US Customs. While on the desk of an import specialist, the battery started emitting sparking flames and smoke.
24.	15-Sep-2006 FAA Case # 2006GL700427	Silver oxide button cells, various sizes		Cargo flight	During off-loading at their Plymouth, MN facility, DHL/Airborne personnel discovered two boxes that were warm to the touch. The boxes were opened and found to contain hundreds and hundreds of button cell batteries loosely packed together in a plastic bag liner. Batteries were being shipped by a small business battery recycler that stated they thought all batteries were discharged. Tests showed many still had positive voltage.

25.	17-Jul-2006 FedEx Notification to FAA	<i>EaglePiche r-Kokam</i> Lithium ion/polymer (used for remote control models), 122 batteries of various sizes		Cargo flight	The unlabeled/marked package was discovered to have caught fire while being held in bond for customs clearance in Korea. Package had traveled to Korea in FedEx system from Vienna via Paris and Subic Bay.
26.	03-MAR-2006 FedEx incident report	Lithium ion button cells, mfr. by <i>Lixing</i>		Cargo flight	US-bound package was noticed to be smoking at outbound FedEx station in Shenzhen, China. Upon inspection, the package of lithium ion batteries was discovered to be on fire.
27.	29-JUN-2005 FAA case # 2005WP700218 DOT Incident report # 2005080470	Lithium Ion	Battery-pack	Cargo flight	At UPS in Ontario, Calif., during unloading of a ULD from Shanghai, it was discovered that a fire had taken place inside the ULD. A package containing a lithium-ion battery pack was identified as the source of the fire. Upon discovery, the burnt package and its contents were cool to the touch and there was no smoldering evident.
28.	11-FEB-2005 FAA incident summary DOT incident report # 2005030047	Lithium battery, solid cathode, manufactured by <i>Eagle Picher</i> of Surrey, BC, Canada.	None	Cargo flight	An undeclared package containing 18 lithium batteries caught fire while being unloaded from a conveyor belt at the FedEx facility in White Bear Lake, MN. FedEx cargo handlers report hearing a "pop" sound and then seeing the box "lifted" off the conveyor belt by the force. The shipment had flown from Los Angeles to Minneapolis and was to be trucked to Clear Lake, WI. Only one battery caught fire.
29.	07-AUG-2004 FAA incident summary statement, DOT Incident Report #2004081622	Lithium-ion	Lithium-ion batteries assembled together in a plastic case	Cargo flight	Prototype lithium batteries shipped under a competent authority approval from California to Europe apparently started a fire in a ULD during the loading process at the FedEx Memphis hub. The ULD had just been loaded for a transatlantic flight (Memphis-Paris). The ULD and many other packages in it were damaged/destroyed by fire. Shipment apparently was in violation of the DOT approval allowing the prototype battery to be shipped.
30.	12-AUG-2002 DOT Incident report #2002090134	Lithium battery (excepted)	Samsung minicomputer (palm pilot)	Cargo flight	Burning odor detected by handlers at the Los Angeles FedEx inbound package sort center. Battery apparently short-circuited causing the bubble wrap in the package to burn and melt onto the unit.

31.	12-APR-2002 DOT Incident report #2002050519	Lithium batteries	None	Cargo flight	Lithium batteries shipped under exception by Abbott Labs did not have terminals protected from short circuit. Started fire inside package at FedEx Indy sort facility.
32.	07-JUN-1999 DOT Incident Report	“Non-regulated” batteries. Actual type unknown.	None	Cargo flight	Package noticed during FedEx operation in Greensboro, NC to have burning smell. Inner batteries apparently arced causing batteries to burn inside the package. Incident report stated batteries had not been packaged correctly.
33.	10-OCT-1998 FAA AAL Special Agent statement	Unknown	336 laptop computers	Cargo flight	Fire warning diverted cargo aircraft. Captain/flight engineer inspected cargo area. Both noted heat rising between pallets on jet flat, as well as strange odor and lung irritation. Fire fighters sprayed pallet with retardant. No further evidence of heat exposure or fire.
34.	19-MAY-1998 FAA #EA19980082	Unspecified batteries	Uninterruptible power supply (UPS) units (2)	Cargo at IAC warehouse	One of the UPS units exploded during offloading of a truck.
35.	26-SEP-1996 DOT Incident report #1996110343	Lithium batteries	None	Cargo flight	Eight lithium batteries were connected in a series and packed with bubble wrap inside a plastic express envelope. There were exposed connections on one end and loose wires on the other end. The batteries were not secured from movement within the package and a short-circuit resulted causing the packaging to burn. Burnt package discovered at Airborne sort center after first flight and prior to trans-Pacific cargo flight.
36.	08-MAY-1994 UK CAA DG Occurrence Report Database (G. Leach)	<i>Duracell</i> lithium batteries (excepted from ICAO regulation by SP A45)	None	Intended to go as cargo on passenger aircraft	Consignment of lithium batteries found emitting smoke in ULD during truck transport to LHR. Fire damage. Batteries were smaller in diameter than a dime and about 5 mm high. They had been tossed loosely into a box. Positive and negative terminals had "tails" which were prone to short circuiting. The shipper was prosecuted by the UK CAA for failure to comply with Special Provision A45 of the ICAO Technical Instructions and fined £1200 with £300 costs.