



Submission of Comments on Smoking  
of Electronic Cigarettes on Aircraft:  
Proposed Rule

Docket No. DOT-OST-2011-0044

November 14, 2011



Docket Management Facility  
U.S. Department of Transportation  
1200 New Jersey Ave., SE  
West Building Ground Floor, Room W12-140  
Washington, DC 20590-0001

14 November 2011

RE: Submission of Comments on Smoking of Electronic Cigarettes on Aircraft: Proposed Rule, Docket No. DOT-OST-2011-0044

Secretary LaHood:

The Independent Pilots Association (IPA), the bargaining unit for the 2700 pilots of United Parcel Service, has reviewed the proposed rule on the Smoking of Electronic Cigarettes on Aircraft published in the Federal Register on September 15, 2011. We applaud the DOT for taking this first step in addressing the inherent dangers of using Lithium battery powered electronic cigarettes (e-cigarettes) onboard aircraft.

While we support the published intent of prohibiting the use of e-cigarettes from use on passenger aircraft, we are dismayed that once again we are exposed to a double standard of safety regulations carving out less safe standards for cargo aircraft operations.

As cargo pilots, we have witnessed first hand how difficult creating rules which are acceptable to the aviation industry has been. The uniform treatment of all pilots who fly under Part 121 is a significant step forward in securing the safety of American skies and promotion of the health and welfare of all Part 121 pilots and the public.

After a thorough review of the NPRM, the IPA is requesting that the FAA expand this rule to apply to all aircraft. We also request that the Secretary direct the PHMSA to publish a final rule on the movement of lithium batteries that prohibits their transportation via all aircraft except when carried within a compartment or container, with a demonstrated fire-suppression system of sufficient size and quantity to suppress a fire involving the material in the compartment or container. Our comments to the rule are attached herein. We look forward to the publication of the final rule and applaud the DOT for its dedication in creating rules that will increase the safety of our aviation system.

Sincerely,

Michael Moody, Jr.  
IPA At-Large Representative

**BEFORE THE  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
WASHINGTON, D.C.**

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Notice of Proposed Rulemaking for ) Docket No. DOT-OST-2011-0044  
Smoking of Electronic Cigarettes on Aircraft )

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**INDEPENDENT PILOTS ASSOCIATION’S COMMENTS**

On behalf of the pilots who fly for United Parcel Service, the Independent Pilots Association (IPA) submits the following comments to the Notice of Proposed Rulemaking (“NPRM”) for Smoking of Electronic Cigarettes on Aircraft.

**Introduction**

The Independent Pilots Association (IPA) is the collective bargaining representative for the 2,700 pilots employed by United Parcel Service (UPS). UPS Co. (the airline division of UPS) began operations as a certified Part 121 carrier in 1988. Currently, it operates the world’s ninth largest fleet of 225 jet aircraft including the Boeing 747-400, 757, 767, McDonnell-Douglas 11 and the Airbus 300. It operates over 1,700 domestic and international flight segments daily, flying from hubs located throughout the United States and the world including Louisville, Kentucky; Philadelphia, Pennsylvania; Dallas, Texas; Ontario, California; Rockford, Illinois; Columbia, South Carolina; Shenzhen, Hong Kong and Shanghai, China; and Cologne, Germany. Internationally, UPS flies long-haul trunk routes, intra-Europe and intra-Asia flights and around-the-world flights. Unlike other cargo airlines that focus primarily on freight, UPS is the world’s largest package delivery company.<sup>1</sup>

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<sup>1</sup> UPS Pressroom, *UPS Fact Sheet*, (visited Nov. 14, 2011).  
<http://www.pressroom.ups.com/Fact+Sheets/UPS+Fact+Sheet>

## Comment

The IPA has been acutely aware of the proliferation of Lithium battery e-cigarettes in our society as we continue to see large bulk shipments of them on our aircraft. This was reinforced in the recently released General Civil Aviation Authority of the United Arab Emirates (GCAA) Interim report of the on-going investigation into the on-board fire and fatal crash of B747-400 UPS Flight 6 in Dubai, UAE September 3, 2010 which killed two of our members. The Interim report documents that there were 12 pallets of e-cigarettes along with thousands of other Lithium batteries on board the doomed flight.<sup>2</sup>

Since January 1, 2008 the DOT has prohibited the carriage of spare Lithium batteries in passenger checked luggage.<sup>3</sup> We find it difficult to comprehend a prohibition of Lithium batteries in checked baggage stowed in a passenger aircraft Class C – fire suppressed compartment, but the continued allowance of Lithium batteries not only in cargo aircraft Class C compartments, but also in our cargo aircraft Class E main decks without any available fire suppression. This is especially difficult to fathom with the knowledge that cargo aircraft are further exempted from these safety rules due to the Research and Special Programs Administration (RSPA), DOT Final Interim Rule (RSPA-04-19886) published December 15, 2004:

“Generally speaking, the characteristics of all-cargo aircraft provide options to pilots that would allow them to stop airflow to cargo compartments while the aircraft remains at a high altitude. Such action, especially at high altitude, would reduce the amount of oxygen available to a fire. Stopping or reducing the amount of oxygen to a compartment would help mitigate a fire.”<sup>4</sup>

Shortly after the crash of Flight 6, on October 8, 2010, the FAA issued Safety Alert For Operators (SAFO) 10017. Within this SAFO the FAA highlighted the dangerous nature of transporting in cargo aircraft both Lithium-metal and Lithium-ion batteries. The purpose of the SAFO was: “To alert operators to the recent findings from the Federal Aviation Administration (FAA) William Hughes Technical Center testing results from April 2010 to September 2010.

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<sup>2</sup> General Civil Aviation Authority of the United Arab Emirates (“GCAA”). *Air Accident Investigation Interim Report, Accident Reference 13-2010, Boeing 747-44AF, N571UP, Dubai, United Arab Emirates, September 3, 2010*, pp. 40-44 (visited Nov. 14, 2011).

<sup>3</sup> U.S. DOT. *Traveling Safely With Batteries and Battery Powered Devices*. (visited Nov. 14, 2011). [http://safetravel.dot.gov/whats\\_new\\_batteries.html](http://safetravel.dot.gov/whats_new_batteries.html).

<sup>4</sup> Hazardous Materials; Prohibition on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule, 69 Fed. Reg. 75,208, 75211 (2004) (Wednesday, Dec. 15, 2004).

The Pipeline and Hazardous Materials Safety Administration (PHMSA), in coordination with the FAA, is considering the best course of action to address the risk posed by lithium batteries.”<sup>5</sup>

From FAA SAFO 10017:

“Lithium metal batteries are highly flammable and capable of ignition. Ignition of lithium metal batteries can be caused when a battery short circuits, is overcharged, is heated to extreme temperatures, is mishandled, or is otherwise defective. Once a cell is induced into thermal runaway, either by internal failure or by external means such as heating or physical damage, it generates sufficient heat to cause adjacent cells to go into thermal runaway. The result of thermal runaway in a lithium metal cell is a more severe event as compared to a lithium-ion cell in thermal runaway. The lithium metal cell releases a flammable electrolyte mixed with molten lithium metal, accompanied by a large pressure pulse. The combination of flammable electrolyte and the molten lithium metal can result in an explosive mixture. Halon 1301, the suppression agent found in Class C cargo compartments, is ineffective in controlling a lithium metal cell fire.

The explosive potential of lithium metal cells can easily damage (and potentially perforate) cargo liners, or activate the pressure relief panels in a cargo compartment. Either of these circumstances can potentially lead to a loss of Halon 1301, allowing rapid fire spread within a cargo compartment to other flammable materials. For this reason, lithium metal cells are currently prohibited as bulk cargo shipments on passenger carrying aircraft.

FAA testing has shown that encased or enclosed lithium metal batteries may pose a safety risk. Two types of robust, readily available containers were tested at the FAA Tech Center: five gallon steel pails with crimp on gasketed lids, and 30 gallon steel drums with bolt closed ring seals and gasketed metal lids. For both types of container, as few as six loose CR2 lithium metal cells were sufficient to cause failure when induced into thermal runaway by an electric cartridge heater. The confined electrolyte and the molten lithium ignition source formed an explosive condition, forcefully separating the lid from the container. The explosive force in this test was likely high enough to cause physical damage to an aircraft’s Class C cargo compartment.

A container specially designed to ship lithium metal batteries would need to demonstrate that it can withstand this explosive condition. There are currently no approved and tested containers that can sufficiently contain the known effects of accidental lithium metal battery ignition. Common metal shipping containers, pails and drums, are not designed to withstand a lithium metal cell fire.

Our test results have also demonstrated that lithium-ion cells are flammable and capable of self-ignition. Self-ignition of lithium-ion batteries can occur when a battery short circuits, is overcharged, is heated to extreme temperatures, is mishandled, or is otherwise defective. Like lithium metal batteries, lithium-ion batteries can be subject to thermal runaway. A battery in thermal runaway can reach temperatures above 1,100 degrees F, which exceeds the ignition temperature of most Class A materials, including paper and cardboard. These temperatures are also very close to the melting point of aluminum

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<sup>5</sup> U.S. DOT, FAA. Safety Alert For Operators 10017 (Oct. 8, 2010). (visited Nov. 14, 2011) [http://www.faa.gov/other\\_visit/aviation\\_industry/airline\\_operators/airline\\_safety/safo/all\\_safos/media/2010/SAFO10017.pdf](http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2010/SAFO10017.pdf).

(1,220 degrees F). The fire suppression system in Class C compartments, Halon 1301, has been shown to be effective in suppressing fires generated by lithium-ion batteries, but does not eliminate the risk of transporting such batteries.”<sup>6</sup>

On January 11, 2010 the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a Notice of Proposed Rulemaking (NPRM): Hazardous Materials: Transportation of Lithium Batteries (PHMSA-2009-0095) which proposed new regulations that would improve inadequate existing safety regulations of the carriage of Lithium batteries in our aviation system.<sup>7</sup> Comments were due March 12, 2010, and even with a large amount of public press speaking of impending publication of a final rule shortly after the crash of Flight 6, over a year and a half later we are still waiting for publication of the final rule.

The danger of these types of batteries is not going away. Media reports identified a recent incident of a Lithium-ion electric-car battery that appeared perfectly safe, a full three weeks after testing, spontaneously catching on fire.<sup>8</sup> In addition to e-cigarettes, we continue to see more and more electric-car Lithium batteries shipped on our cargo aircraft, 58 of which were identified in the GCAA Interim Report on Flight 6.<sup>9</sup>

### **Conclusion**

In light of the above facts and information, the IPA requests that the Secretary direct all agencies within the DOT to enact safety rules that do not carve out substandard rules for cargo aircraft. We request that the proposed rule banning the use of e-cigarettes apply equally to **all** aircraft operations. And just as importantly, we implore the Secretary to direct PHMSA to publish a final rule on the movement of Lithium batteries that prohibits their transportation via **all** aircraft except when contained within a compartment with a demonstrated fire-suppression system of sufficient size and quantity to suppress a fire involving the material in the compartment. We believe this can be accomplished via a “whole” compartment system or a container/pallet system. The enactment of such proactive rules will provide one level of safety for all Americans.

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<sup>6</sup> *Id.*

<sup>7</sup> Hazardous Materials: Transportation of Lithium Batteries, 75 Fed. Reg. 1302 (2010) (to be codified at 49 CFR pts. 172, 173, 175) (proposed Jan. 11, 2010).

<sup>8</sup> Nick Bunkley, *Batteries in Electric Cars Examined After Chevy Volt Fire*, N.Y. Times, Nov. 11, 2011, Business Day. (visited Nov. 11, 2011). [http://www.nytimes.com/2011/11/12/business/energy-environment/regulators-examine-electric-car-batteries-after-fire.html?\\_r=1&emc=eta1](http://www.nytimes.com/2011/11/12/business/energy-environment/regulators-examine-electric-car-batteries-after-fire.html?_r=1&emc=eta1) .

<sup>9</sup> GCAA Interim Report, *supra* note 2.