



U.S. Department
of Transportation
**Federal Aviation
Administration**

SAFO

Safety Alert for Operators

SAFO 16004
DATE: 5/6/16

Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.

Subject: New International Civil Aviation Organization (ICAO) Regulatory Requirements for Shipping and Transporting Lithium Batteries

Purpose: This SAFO alerts Title 14 of the Code of Federal Regulations (14 CFR) part 121, 125, 129 and 135 operators of the new Dangerous Goods/Hazardous Materials requirements contained in ICAO Technical Instructions (TI) for the shipment of lithium batteries. This SAFO also encourages operators to notify their customers who offer lithium battery cargo shipments of these changes.

NOTE: This SAFO only addresses shipments of lithium ion and metal batteries as cargo, not those contained in or packed with equipment. Neither this SAFO nor the newly effective ICAO requirements impact existing regulations for passengers and crew members transporting lithium batteries.

Background: ICAO has recently adopted several critical safety provisions related to the shipment of lithium batteries (inclusive of both cells and batteries). The specific changes are found in:

- *Addendum No. 3 to the Technical Instructions (2015/2016 Edition)* (January 15, 2016)
- *Addendum No. 4 to the Technical Instructions (2015/2016 Edition)* (February 23, 2016).

Information referencing the ICAO actions can be found in Addenda I and II of the 57th Edition of the International Air Transport Association (IATA) Dangerous Goods Regulations. For shipments subject to the ICAO Technical Instructions, the following provisions, which are applicable to both cargo transporters and operators, became effective on April 1, 2016:

- Shipments of **UN 3480 Lithium Ion Batteries**, *including lithium ion polymer batteries*, are **FORBIDDEN** from transport as cargo on passenger aircraft. These include Section IA, Section IB, and Section II shipments. These shipments must now have the “Cargo Aircraft Only” label in addition to existing hazard communication requirements and can only be offered to operators for carriage aboard cargo only aircraft.
- Shipments of **UN 3480 Lithium Ion Batteries**, *including lithium ion polymer batteries*, offered for transport on cargo only airplanes “must be offered for transport at a state of charge not exceeding 30 percent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 percent of their rated capacity may only be shipped internationally with the approval of the

State of Origin and the State of the Operator under the written conditions established by those authorities”. In the U.S., the Pipeline and Hazardous Materials Safety Administration (PHMSA), in coordination with the FAA, will consider any applications for such approvals.

- Shippers of **UN 3480 Lithium Ion Batteries**, including lithium ion polymer batteries, and **UN 3090 Lithium Metal Batteries**, including lithium alloy batteries, under ICAO’s “Section II” provisions (for Packing Instruction (PI) PI 965 and PI 968) are not permitted to offer for transport more than one Section II package in any single consignment or more than one Section II package per overpack.

NOTE: For clarity, UN3480 and UN3090 do not include lithium batteries contained in or packed with equipment.

For those shipments and operations not subject to ICAO requirements, the Federal Aviation Administration (FAA) recommends that operators implement some or all of these provisions in order to eliminate or reduce the risk associated with the transport of lithium batteries. See: SAFO 16001 *Risks of Fire or Explosion when Transporting Lithium Ion or Lithium Metal Batteries as Cargo on Passenger and Cargo Aircraft*, which was issued January 19, 2016.

Discussion: It is generally recognized that the safe transport of hazardous materials by air requires compliance from both shippers and operators. The FAA has specifically noted the important role that shippers play in the safe transport of lithium batteries and how operators can enhance safety by recognizing the role that their cargo customers have in introducing risk into their system. In 2010, the FAA recommended operators request that their cargo customers “identify shipments of currently excepted lithium batteries by information on airway bills and other documents provided by shippers offering shipments of lithium batteries.” See: SAFO 10017 *Risks in Transporting Lithium Batteries in Cargo by Aircraft*, which was issued October 8, 2010. Earlier this year, the FAA urged operators to consider, “the history of the shipper’s compliance with dangerous goods transport regulations.” See: SAFO 16001 *Risks of Fire or Explosion when Transporting Lithium Ion or Lithium Metal Batteries as Cargo on Passenger and Cargo Aircraft*.

The FAA believes that an operator’s ability to comply with the above-referenced ICAO Addenda 3 & 4 (effective on April 1, 2016) is significantly dependent on the compliance of shippers. The FAA will continue to conduct risk-based inspections and outreach to known lithium battery shippers; however the U.S. Government has limited oversight over global shippers. Therefore, operators are encouraged to communicate the information in this SAFO, as well as any relevant policies carriers have in place, to shippers of lithium battery cargo to ensure compliance with the ICAO Technical Instructions.

Recommended Action: Operators should review [the Pipeline and Hazardous Materials Safety Administration; {Docket No. PHMSA-2016-0014; Notice No. 2016-05}; Hazardous Materials: ICAO Lithium Ion Battery Prohibition Safety Advisory Notice](#) on the newly effective changes to international requirements. The notice can be accessed by visiting: http://phmsa.dot.gov/staticfiles//PHMSA/DownloadableFiles/Files/ICAO_Lithium_Ion_Battery_Prohibition_Safety_Advisory_Notice.pdf.

Operators should also review the recommendations contained in SAFO 16001 *Risks of Fire or Explosion when Transporting Lithium Ion or Lithium Metal Batteries as Cargo on Passenger and Cargo Aircraft*,

January 19, 2016, with the understanding that the new ICAO Technical Instructions establish further regulatory restrictions on the carriage of lithium batteries. With these new regulatory restrictions in mind, operators that have implemented a formal Safety Management System (SMS) should conduct a Safety Risk Assessment (SRA) in accordance with the Safety Risk Management process in its SMS to further evaluate and identify hazards associated with the acceptance of lithium batteries offered by shippers. In identifying hazards that could be introduced into the operator's system, operators should also consider:

- The shippers knowledge of the new requirements contained in the ICAO Technical Instructions, and
- For cargo only operations, the shipper's ability to determine whether UN3480 lithium ion batteries are offered at a state of charge of less than 30% of rated capacity.

Risk mitigation for these hazards should include a means of referring shippers who offer, or are likely to offer, lithium batteries for transport to the notice issued by Pipeline and Hazardous Materials Safety Administration; {Docket No. PHMSA-2016-0014; Notice No. 2016-05}; Hazardous Materials: ICAO Lithium Ion Battery Prohibition Safety Advisory Notice. In doing so, operators should recognize that some shippers may have previously shipped exclusively under "Section II" provisions. Therefore, broad dissemination to shippers is recommended and should not be limited only to shippers who have previously offered fully declared (Section IA or Section IB) shipments.

The FAA recommends that those operators that do not have a formal SMS process, and are authorized to transport hazardous materials, apply the hazard identification and risk mitigation strategies identified above as well as refer to SAFO 16001.

Related Information:

- ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, *Addendum No. 4 to the Technical Instructions (2015/2016 Edition) (released on February 23, 2016)*.
<http://www.icao.int/safety/dangerousgoods/Pages/default.aspx>.
- SAFO 16001 *Risks of Fire or Explosion when Transporting Lithium Ion or Lithium Metal Batteries as Cargo on Passenger and Cargo Aircraft*. January 19, 2016.
https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2016/SAFO16001.pdf.
- ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, *Addendum No. 3 to the Technical Instructions (2015/2016 Edition) (released on January 15, 2016)*.
<http://www.icao.int/safety/dangerousgoods/Pages/default.aspx>.
- EASA Safety Information Bulletin – Operations – SIB No.: 2015-19; 05 October 2015; Transport of Lithium Batteries as Cargo by Air.
- SAFO 15010 *Carriage of Spare Lithium Batteries in Carry-on and Checked Baggage*. October 8, 2015.

https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2015/SAFO15010.pdf.

- SAFO 10017 *Risks in Transporting Lithium Batteries in Cargo by Aircraft*. October 8, 2010. http://www.faa.gov/news/press_releases/media/safo10017.pdf.
- ICAO Electronic Bulletin, EB 2015/48; AN 11/2.1; 15, September 2015.
- Airbus In-Service Information publication, ISI 00.00.00182, July 24, 2015.
- Boeing Multi Operator message, MOM-MOM-15-0469-01B, July 17, 2015.

Contact: Questions concerning this SAFO should be directed to the FAA Office of Hazardous Materials Safety, ADG-1, at (202) 267-9432.