



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

SAFO

Safety Alert for Operators

SAFO 24007

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Flight Standards Service
Washington, DC

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

A SAFO contains important safety information and may include recommended action. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

Subject: Shipments of Batteries/Battery-Powered Devices and Flammable Materials.

Purpose: This SAFO alerts aircraft operators to safety concerns involving cargo shipments that may contain batteries, battery-powered devices, or analog or electronic timing devices in combination with flammable materials (e.g., flammable liquids, flammable solids, flammable gas).

Background: Hazardous materials have been a factor in multiple aviation accidents over the past few decades, revealing an elevated risk when carrying certain quantities of hazardous materials, such as flammable aerosols, gases, solids, explosives and lithium batteries. Lithium batteries and lithium-battery powered devices can act as an ignition source and/or contribute significantly to a fire once ignited. In all instances, aircraft operators must know what is being carried aboard their aircraft and ensure that hazardous materials accepted for carriage comply with the Hazardous Materials Regulations Title 49 of the Code of Federal Regulations (49 CFR) Parts 171-185; HMR. However, these regulations do not address the aircraft-level risk posed by an aggregate shipment of these items. In the absence of other controls, certain cargo shipments can exceed the capabilities of design features of aircraft fire protection systems required by 14 CFR part 25 §§ 25.851, 25.853, and 25.855 through 25.858.

Discussion: The holiday season is rapidly approaching, when the number of packages, including electronics, entering into the aviation cargo stream significantly increases, warranting a review by aircraft operators of their procedures and checklists specifically addressing recognition, differentiation, and mitigation of odors, smoke, fire and/or fumes in the aircraft. Events involving odor, smoke, fire and/or fumes may require targeted and timely action to protect the aircraft, aircrew and passengers.

Recommended Action: The Federal Aviation Administration (FAA) recommends aircraft operators review their Safety Risk Assessments (SRA) through their Safety Management System (SMS) processes to ensure they have identified and mitigated the risks associated with the carriage of certain quantities of hazardous materials, such as flammable aerosols, gases, solids and explosives, and lithium batteries. To ensure the proper preventive controls and risk mitigations are in place for cargo fire events, operators should review [Advisory Circular \(AC\) 120-121—Safety Risk Management Involving Items in Aircraft Cargo Compartments](#), and conduct SRA, as appropriate.

Under their existing SMS structure, operators should review:

- The adequacy of existing preventive controls to ensure cargo, including undeclared hazardous materials, onboard the aircraft will not cause a fire that exceeds the capabilities of design features of aircraft fire protection systems.
- In-flight procedures for actions to be taken during odor, smoke, and/or fume events to ensure their flightcrews are thoroughly familiar with those procedures.
- Guidance for crews, including, when appropriate, security information that can be disseminated through appropriate internal channels (e.g., Sensitive Security Information bulletins, manuals, etc.) as specific concerns are identified.
- Applicable international standards regarding equipage of fire protection systems and applicable risk assessment elements.

Contact: General questions or comments regarding this SAFO and/or cargo-specific subjects should be directed to the Air Transportation Division at 9-AFS-200-Correspondence@faa.gov or (202) 267-8166. Questions regarding hazardous materials should be directed to the Office of Hazardous Materials Safety at hazmatinfo@faa.gov or (405) 954-0088.