

New Proposed Regulation

ARAC
25.853

all aircraft parts, components and assemblies within and including the fuselage must provide protection from the foreseeable fire threats. The foreseeable fire threats are in-flight fire threats, as well as the post-crash fire threat. Aircraft parts, components and assemblies subjected to these in-flight fire threats shall not present a direct hazard to the occupants, and shall allow the continued safe flight and landing of the aircraft. Aircraft parts, components and assemblies subjected to the post crash fire threat shall maintain survivable cabin conditions for a period of time adequate to facilitate evacuation.

In Flight Fire
25.853(a)

The foreseeable in-flight fire threat depends on the area/zone of the aircraft, the nature of the ignition source, the likelihood of detection, accessibility to the area/zone, and the fire suppression and extinguishing capability.

Cargo
25.853(1)a)
Large Fire

a) Class C or equivalent
Ceiling and sidewall liner panels of each cargo or baggage compartment classified as C per §25.857 or equivalent, including any design features such as joints, lamp assemblies, etc., that may alter the continuity of the liner, must meet the requirements defined in Appendix F.I.D (e.g. cargo oil burner).
Cargo floor panels (including materials serving the purpose of a liner at or below floor level) must meet requirements defined in Appendix F.1.TBD (e.g. 45 degree Bunsen burner).

b) Classes B and E
Class B, and E cargo liners (ceilings, sidewalls and floors) shall meet requirements defined in Appendix F.1. TBD (e.g. 45 degree Bunsen burner).
Liners including design features used to protect critical/essential systems of Class B or E compartment required to maintain safe flight and landing of the airplane must meet fire penetration resistance to Appendix F.I.D (e.g. cargo oil burner).

(1) Cargo and baggage compartment classified B through (tbd) F as per §25.857 have a liners resistant to a cargo fire for compartment classifications the following criteria apply:

c) Class (tbd) F
Liners shall be Class C type as defined above, unless there are adequate means to contain and control to fire; if so, then liners as described in Class B and E above maybe used. (This requires further review based on FAA rule making regarding Class F).

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Exceptions & Alternatives:

(1) Components (examples: cargo restraint, cargo conveyance, cargo covers, moisture control, floor panels not part of liner and other similar miscellaneous components) within the confines of a cargo compartment require no flammability testing.
(2) components, parts and assemblies that have been shown by an analysis to be acceptable to the administrator in regard to fire penetration for parts that are essential for the safety of the aircraft/ occupants or for the functionality of the aircraft that cannot reasonably be constructed of a less flammable material without compromising their integrity and functionality. (Examples include cargo door surrounds, system ventilation penetration, etc ... as defined in AC)

New or Changed
Design

Inside Liner?
Yes
No Test

All Cargo
Classes, either
above or below
cargo floor

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Is panel (liner,
design feature)
required to protect
critical sysem?

Class B or E?

Class C?

Above Cargo
Floor

Class F

Components/parts

Cargo Floor

Lower Liner
(in Lieu of Floor)
(if applicable)

Sidewall Liner or
Sidewall Panel

Cargo Ceiling
Panel

Design Feature
(example: joints)

Fire, Smoke, Air
Stops

Cargo Oil Burner
(c)

Liner 45 deg
Bunsen Burner
(b)

Cargo Oil Burner
(c)

Additional Rule
Making

Do Test for
Cargo
Classification

Passes Test

Substantiation
Data to support
Certification

Redesign
(Joint or material)

1 See proposed AC for applicalbe tests and acceptable MOCs/AMoCs

2 Rule making in process to replace class 'B' with 'F'

3 Class A Cargo not used.