DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 25, 121, and 135

[Docket No. 26192, Amendments Nos. 25–83, 121–247 and 135–55]

RIN 2120–AD28

Improved Flammability Standards for Materials Used in the Interiors of Transport Category Airplane Cabins

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: These amendments clarify standards adopted in 1986 concerning the flammability of components used in the cabins of certain transport category airplanes. This action is being taken to preclude costly, unintended changes to airplane interiors. The clarifications, which are applicable to air carriers, air taxi operators and commercial operators, as well as manufacturers of such airplanes, will result in more appropriate, consistent application of those standards.

EFFECTIVE DATE: March 6, 1995.

FOR FURTHER INFORMATION CONTACT: Gary L. Killion, Manager, Regulations Branch, ANM–114, Transport Airplane Directorate, Aircraft Certification Service, FAA, 1601 Lind Avenue Southwest, Renton, Washington 98055–4056; telephone (206) 227–2114.

SUPPLEMENTARY INFORMATION:

Background

These amendments are based on Notice of Proposed Rulemaking (NPRM) 90–12, that was published in the **Federal Register** on April 12, 1990 (55 FR 13886).

As discussed in the notice, Amendments 25–61 and 121–189 (51 FR 26206, July 26, 1986) were adopted to upgrade the flammability standards for materials used in the interiors of transport category airplanes. The improved flammability standards were developed following a research and development program managed and conducted primarily at the FAA Technical Center in Atlantic City, New Jersey, to study aircraft fire characteristics and develop practical test methods. Among the tests conducted at the Technical Center were full-scale fire tests using the fuselage of a military C–133 configured to represent a wide-body jet transport airplane. The test conditions simulated representative post-crash external fuel-fed fires. Numerous laboratory tests were also conducted to correlate possible material qualification test methods with the full-scale tests. As a result of those tests, the Ohio State University (OSU) radiant rate-of-heat-release apparatus was determined to be the most suitable for material qualification. These tests led to the adoption of Amendment 25–61.

Amendment 25–61 established flammability standards for transport category airplanes with passenger seating capacities of 20 or more and specified the test method and apparatus to be used in showing compliance with those standards. It specified that interior ceiling and wall panels (other than lighting lenses), partitions, and the outer surfaces of galleys, large cabinets and stowage compartments (other than underseat stowage compartments and compartments for stowing small items such as magazines and maps) must meet the new standards. As outlined in the amendment, an average of three or more test specimens must not exceed 65 kilowatts per square meter peak heat release nor 65 kilowatt minutes per square meter total heat release during the first two minutes of sample exposure time (65/65) when tested using the OSU test apparatus. These acceptance criteria were chosen in order to produce a significant retardation of the flashover event which controls occupant survivability, as experienced in the full-scale testing. (Burning cabin materials give off unburned gases that collect in the upper portions of the cabin. After a very short time, these unburned gases are heated to the point where they ignite and burn instantaneously. When this occurs, the temperature in the whole cabin becomes so hot that survival is impossible for anyone remaining in the cabin. This phenomenon, known as flashover, also makes further survival impossible by consuming the oxygen in the cabin.)

Because Amendment 25–61 applies explicitly only to airplanes for which an application for type certificate is made after August 20, 1986, Amendment 121–189 to Part 121 of the FAR was also adopted to require operators of certain other airplanes used in air carrier or commercial service to meet the new 65/65 standards. Those airplanes must meet the new standards if they were newly manufactured after August 19, 1990. Airplanes type certificated on or after January 1, 1958, and manufactured prior to August 20, 1990, must also comply with the new standards upon the first substantially complete replacement of the specified cabin interior components on or after the latter date.

Although Part 135 was not amended at that time, air taxi and commercial operators of large airplanes are required to comply as well because § 135.169 incorporated the newly adopted provisions of Part 121 by reference.

At the time the amendments were adopted, the FAA understood that some persons were planning to install components which, even though they would meet the previously existing requirements of Part 25 for flammability, were more flammable than the components that were in general use at that time. In order to preclude a possible degradation in the flammability characteristics of the cabin interiors, Amendment 121–189 also established interim standards of 100 kilowatts per square meter peak heat release and 100 kilowatt minutes per square meter total heat release (100/100). The interim standards are applicable to airplanes manufactured during the two-year period prior to August 20, 1990; and, unless there is a substantially complete replacement of the specified cabin interior components after August 19, 1990, they will remain applicable to those airplanes as long as they are operated under the provisions of Part 121 or Part 135. (If there is a substantially complete replacement on or after August 19, 1990, the definitive 65/65 standards would be applicable.) In addition, the interim standards are also applicable to airplanes in which there is a substantially complete replacement of the specified interior components during that two-year period.

Prior to the adoption of Amendment 121–189, § 121.312 required certain airplanes to meet earlier flammability standards upon the first substantially complete replacement of the cabin interior. (Note that this earlier rulemaking refers to a substantially complete replacement of all cabin interior components, while the later rulemaking refers to a substantially complete replacement of the specified interior components. Whether certain other interior components, e.g., seat cushions and flooring, are replaced is not relevant to whether there is a substantially complete replacement in the latter case. Also, the earlier rulemaking applies to all airplanes while the later rulemaking applies only to airplanes with 20 or more passengers.) This earlier requirement is partially superseded if there is a substantially complete replacement of the interior components specified in § 25.853(a–l) after August 19, 1988. It does, however, remain applicable insofar as interior components not specified in § 25.853(a–l) are concerned. The earlier requirement also remains applicable to airplanes in which there has not been a substantially complete