

the private sector, likely to result in a total expenditure of \$100 million or more in any one year (adjusted for inflation).

In conducting these analyses, the FAA has determined that this rule has benefits that justify its costs. This rulemaking does not impose costs sufficient to be considered “significant” under the economic standards for significance under Executive Order 12866. Due to public interest, however, it is considered significant under the Executive Order and DOT policy. This rule will not have a significant impact on a substantial number of small entities. This rule has no affect on trade-sensitive activity. This rule does not impose an unfunded mandate on state, local, or tribal governments, or on the private sector. The FAA has placed these analyses in the docket and summarized them below.

Benefits and Costs

Benefits

This rule will generate safety benefits by averting accidents that involve propagation of flame on the film bags that encase thermal acoustic insulation batting, and by mitigating accidents that involve fire burning through from outside an airplane into its cabin. Over a 20-year analysis period the rule is expected to avert one catastrophic accident and a recoverable accident. The estimated present value of the combined flame propagation and burnthrough benefits is about \$222.6 million in constant 2001 dollars.

Flame Propagation Benefits

When an in-flight fire that propagates on insulation in an inaccessible area is detected soon enough, diversion of the flight is likely, thus averting death, injury, and damage to the airplane. However, if such a fire is not detected until it grows beyond the capacity of the aircrew to control, a catastrophic accident with 100 percent fatalities and the complete loss of the airplane can

result. The estimate of the expected benefits of complying with the flame propagation requirements is based on averting such a catastrophic accident. The components of this estimate include (1) averting the deaths; (2) averting the loss of the airplane; and (3) averting the costs of investigating the accident.

An example of a potential future averted accident (basis accident) is the catastrophic accident that occurred on September 2, 1998, when Swissair Flight 111 crashed off the coast of Nova Scotia, Canada, with the loss of 229 lives. Although the Transportation Safety Board of Canada has not released its final investigative report, on August 28, 2001, that agency issued Aviation Safety Recommendations, stating that “* * *The most significant material flammability deficiency discovered has been the inappropriate flammability characteristics of the MPET-covered thermal acoustic insulation blankets* * *

In September 2001, the Fire Safety Section of the FAA’s William J. Hughes Technical Center provided its professional engineering opinion that “* * *this rule change will likely prevent one catastrophic in-flight accident over a twenty-year period after implementation.”

The Section supports its judgment as follows:

“During the study period from 1967 through 1998 three fatal in-flight fires occurred on 121 carriers in North America and an additional six throughout the rest of the world in which the fire was in an inaccessible area and the thermal/acoustic film may have played an important role. A review of recent incident, accident, and service difficulty reports indicates that there are between three and five in-flight fires causing serious damage on part 121 aircraft in the U.S. per year. Most of those occurrences included the spread of fire on the thermal/acoustic film. Preliminary information obtained on one accident (Air Tran Airways, DC-9-32 on November 29, 2000, at Atlanta, Georgia) indicates that had the fire started a little later in the flight the

aircraft would not have been able to make it back to the airport.

Given the above, it is estimated that one catastrophic in-flight fire accident will occur every ten years in the U.S. Thermal acoustic insulation film makes up a large percentage of the surface area in the inaccessible areas of airplanes. If this rule change were fully implemented, it would eliminate 50% of the annual 3 to 5 in-flight fires, thus halving the likelihood of a catastrophic accident to one in every 20 years.” (emphasis added)

The expected present-value benefits from averting a catastrophic accident are estimated to include: averting fatalities (\$110 million); averting the loss of an airplane hull (\$16 million); and averting the costs of an accident investigation (\$1 million). These benefits total to \$127 million.

Burnthrough Benefits

The estimated burnthrough benefits of this rule are based in the September 1999 report “Fuselage Burnthrough Protection for Increased Postcrash Occupant Survivability: Safety Benefit Analysis Based on Past Accidents,” DOT/FAA/AR-99/57 (<http://www.tc.faa.gov/its/act141/reportpage.html>), hereafter referred to as the Cherry Study. This study concludes that four minutes of additional resistance to burnthrough will result in averting 10.1 fatalities and 13.5 injuries per year over the worldwide fleet of passenger-carrying airplanes. The FAA adjusted these fatalities and injuries so as to apply only to part 25 airplanes in part 121 service over the forecast period. The present value total benefit of \$95 million includes \$50 million from averted fatalities, \$34 million from averted injuries, and \$11 million from averted accident investigations

Benefit Summary

Thus, over the 20-year period of analysis examined in this evaluation, the estimated total present value of flame propagation and burnthrough benefits is \$222.6 million.

SUMMARY OF BENEFITS

	Monetary benefits derived by averting deaths	Monetary benefits derived by averting loss of aircraft or injuries	Monetary benefits derived by averting accident investigations	Total monetary benefits
Flame Propagation	\$110.3	loss of aircraft—\$15.6	\$1.4	\$127.3
Burnthrough	50.5	Injuries—33.9	10.8	* 95.3
Total	160.8	49.5	12.2	* 222.6

* Rounded