

Paint Effect on Heat Release of Aircraft Materials

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ABSTRACT:

Aircraft interior cabin furniture, internal wall and ceiling linings often form large areas of continuous surface, which may add significantly to the fire loading of cabin, aid the spread of flame and advance the onset of flashover. In order to give passengers and crews more time to evacuate the airplane after an accident, FAA developed a test standard in 1980s for large surface area panels used in aircraft construction of ceilings, walls, galleys, overhead bins, partitions and other big panels to show compliance with the requirements of FAR 25.853.

For such application with large surface, heat release has been one of the tests used to quantify aircraft material's fire resistance per FAR 25.853, which requires aircraft material and panels to meet a defined level of total heat release and heat release rate. Paint has been often used on interior cabin furniture and deco panels. The influence of paint finishes on heat release is increasingly being recognized but very limited amount of research work has been published in this area.

This paper aims to make a contribution to the understanding of the influence of paint system on the fire performance characteristics. The paper has presented heat release data of a painting system on composite panels. The paint system, such as primer, base paint, top coating, and paint thickness, has been shown impact on the heat release and heat release rate. Different layers in the painted part and the paint thickness effect on heat release have been discussed.