

Ignition of Composites by a Radiant Heat Flux: Test Data and models.

by

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Abstract

Composite structures are increasingly used in aircraft to replace aluminum because of their favorable strength to weight ratios. The behavior of composites in fire is complex given that they are composed of resin and fiber with significant differences in their thermal and flammability properties. Over the years, test data have been obtained on the time to ignition of the composites when subjected to an external radiant heat flux. Various correlations and models of these data have been presented, relating them to property data, particularly the thermal decomposition and ignition of the resin. This paper will review these data, the correlations and the models, and will present an improved model over what has been done so far.