PYROLYSIS BEHAVIOR OF A BMS 8-276 CARBON FIBER COMPOSITE

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Carbon fiber laminate composites have been utilized in the aerospace industry by replacing lightweight aluminum alloy components which results in the unintended consequence of an increase in fuel load for a potential fire in the aircraft. A pyrolysis model has been developed for a Toray Co. carbon fiber laminate composite that complies with Boeing Material Specification 8-276. This model has facilitated an investigation of the burning response, flammability characteristics, the effect of oxidation on pyrolysis, and additional heat and mass transfer effects due to the complicated nature of the composite. Among these investigated heat and mass transfer effects are orthotropic thermal conductivity and the effect of the high density of carbon fiber laminae on gas transport through the composite.