

*Flammability And Mechanical Properties Of Polymer Composites*

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The flammability and flexural strength of fiber-reinforced thermoset resin structural composites for use in aircraft and Navy ships were evaluated. Several different commercial and high performance resins as well as a toughened aerospace composite were tested. Processing characteristics, thermal stability, and flammability of the neat resins were measured using rheometry, thermogravimetry, and pyrolysis-combustion flow calorimetry, respectively. Structural laminates were made from liquid resins and woven glass fabric by vacuum-assisted resin transfer molding (VARTM). Single-layer specimens (lamina) for flammability testing were prepared by hand lay-up. Mechanical properties of the laminates were measured in three-point bending according to ASTM-D790. Fire behavior of the lamina and laminates was measured in the OSU and cone calorimeters according to Federal Aviation Regulation FAR 25.853(a-1) and military standard MIL-STD-2031. Results for the flammability and mechanical properties of these composites will be presented.