

Out-of-Plane Bending Properties of Out-of-Autoclave Thermosetting Prepregs during Forming Processes

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Abstract : In order to predict and model wrinkling which is caused by out of plane deformation due to compressive loading in the plane of the material during composite prepregs forming, it is necessary to quantitatively understand the relative magnitude of the bending stiffness. This study aims to examine the bending properties of out-of-autoclave (OOA) thermosetting prepreg under vertical cantilever test condition. A direct method for characterizing the bending behavior of composite prepregs was developed. The results from direct measurement were compared with results derived from an image-processing procedure that analyses the captured image during the vertical bending test. A numerical simulation was performed using ABAQUS to confirm the bending stiffness value.

Keywords : Bending stiffness, out-of-autoclave prepreg, forming process, numerical simulation.

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