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CO-CURE MANUFACTURE PROCESS AND EVALUATION OF KSLV-II INTERSTAGE
COMPOSITE PANELS

Abstract

In this study, the manufacturing process and structural performance of the composite panels were evaluated for the application of KSLV-II interstage. Two types of structural concepts were considered: Skin-stringer and sandwich-stringer. For the autoclave co-curing of the panels, two techniques were applied: Bladder molding and conventional rubber molding. In the first manufacturing panels using 120 degree C curing CFRP prepreg, multi-defects such as delamination, porosity, voids were detected by NDE regardless of which structural type and co-curing technique were utilized. In the second manufacturing, the material change to 320 degree C curing CFRP prepreg, cure cycle modifications, and addition of debulking process were taken in account. As a result, manufacturing qualities were considerably enhanced. The compression loading tests were carried out with every manufacturing panel. Test result showed that the skin-stringer panel manufactured by the bladder molding technique and the selected process had best structural performance.