

# **Liquid Molding of Carbon Fabric Reinforced Nylon Matrix Composite Laminates**

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## **ABSTRACT**

The present work deals with development of Vacuum Assisted Resin Transfer Molding (VARTM) for thermoplastic composite laminates. VARTM has become a mature technology for large-scale thermoset composite parts/structures. Thermoplastic composite parts are primarily produced by compression molding, extrusion, and/or injection molding. The development of VARTM for processing thermoplastic composites will offer significant benefits in the mass transit and automotive applications. In general, liquid molding of thermoplastics has been limited by factors such as high resin viscosity, high temperature processing requirement and a short processing windows. The present work deals with development of a lab scale setup for VARTM processing of carbon fabric reinforced nylon matrix panels. The nylon used was casting grade PA6 and was fully in situ polymerized. The processing parameters, methodology and limitations of using VARTM for nylon matrix composites will be highlighted. Mechanical test data in terms of static and low velocity impact response of the panels will be presented and compared to traditional thermoplastic and thermoset composites. pillay@uab.edu  
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