TECHNICAL NOTE

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Resin Transfer Molding and Wind Turbine Blade Construction

A Final Research Report

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Abstract

This report examines Resin Transfer Molding (RTM) and other leading composites manufacturing processes as potential candidates for wind turbine blade construction. Among those methods investigated were hand lay-up, compression molding, prepreg, pultrusion, filament winding and RTM. RTM was selected for an economic evaluation against the traditional composite turbine blade manufacturing process, hand lay-up. In reviewing the RTM fabrication technique, it was found that injection modeling is a necessary requirement for the proper mold fill of complex parts and that this process is advancing in four areas pertinent to turbine blade construction: tooling, core integration, automation and sensors. After comparing the limitations and advantages of each of these processes, we concluded that RTM has significant potential in wind turbine blade construction. Resin transfer molding is capable of producing complex geometries with low porosity in a consistent manner and can accomplish this more economically than traditional methods.