

## **Permeability Measurements of Preform-packages**

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### **ABSTRACT**

In Resin transfer moulding (RTM) the liquid resin has to flow over long distances in fibrous media in order to fill up the mould. The resistance of the fibrous media against the resin flow is the permeability of the preform. To obtain relevant mould filling simulation and a good mould design, it is necessary to utilize accurate permeability values. This paper presents permeability results for several preform-packages. The aim of this study was to gain better understanding of the permeability behaviour of the preforms when stitches are present. Stitching can be used to increase the mechanical properties of the final composite or just simply to ease the handling of the preform prior the injection. Material chosen to this study include three different woven carbon fabrics, normal satin weave, satin weave with binder and satin weave with soluble fibres. Each preform-package has six layers but with different stacking style. Different stacking styles are created by stitching certain amount of layers together. In this case six layers or two layers. For the comparison the stitching has been carried out with two different stitching patterns and with two different needle-thread tension levels. The permeability measurements have been carried out using a continuous 2D radial flow measurement technique. This specific technique consist of an aluminium mould with integrated dielectric sensors. These sensors allow to study the flow propagation at any selected time scale. The results showed that the stacking style has the biggest influence on the permeability.