



## Determination of Parameters for Obtaining Resin Film for Production of Prepreg by Hotmelt Procedure

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Pre-impregnated material is used for high performance composite parts where control of resin content and the greatest versatility of material placement is required. The two main methods used for producing thermosetting prepregs are hot-melt and solvent-based impregnations. In solvent-based prepreg processing, the most important processing parameters are the temperature in the impregnation bath, the speed of the prepreg producing line and the tension on the fabric/fibers. In hot melt prepreg processing, prepreg properties depend on roller temperature, roller gap, rotation speed of the rollers in the coating unit, prepreg producing line speed and fabric/fibers tension.

The major benefit for this paper is the determination of parameters for obtaining resin film for production of prepreg by hotmelt procedure. A model has been developed to describe the resin content in thermoset prepreg as a function of the RAW film from Coating unit. Mathematical design experiments are used for the accurate selection of process parameters, providing precise control over the amount and thickness of the produced film.

The purpose of the study is to assess the applicability of full factorial experimental design in manufacturing of prepreg.

The production of the prepreg was conducted by applying 2<sup>4</sup> full factorial experimental design. Based on the obtained experimental data a regression equation was created which best describes the process. More from input variables have influence at RAW in hot melt prepreg processing.

**Keywords:** prepreg, experimental design, RAW, films.