

Book of Abstracts

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FIBRE REINFORCED THERMOPLASTIC COMPOSITE RODS

V. Kling¹, R. Figueiro²

¹MSc Researcher, Department of Textile Technology, Reutlingen University, Reutlingen, Germany

²Professor, Department of Textile Engineering, University of Minho, Guimarães, Portugal, rfang@det.uminho.pt

The current investigation is concerned with the development of a braided reinforced thermoplastic composite. The objective of this research work is to establish an innovative process to produce braided reinforced composite rods using thermoplastic resins. The rod is composed by an outer layer of PES fibres and by axially high performance reinforcing rovings (glass). The thermoplastic matrix (polypropylene) used to impregnate the rod is inserted, in the form of filaments, jointly with the reinforcing rovings during the braiding process. In order to achieve an equal matrix distribution various methods of fibre alignment in the core were tested, including parallel inserting and wrapping of reinforcing fibres with PP filaments. The method developed includes the use of a special device to compress the rods during the melting process of the resin in the oven. Several composite rods have been developed varying the relative amount of polypropylene and reinforcing fibre rovings. The mechanical performance of the rods has been evaluated. The results obtained are presented and discussed.

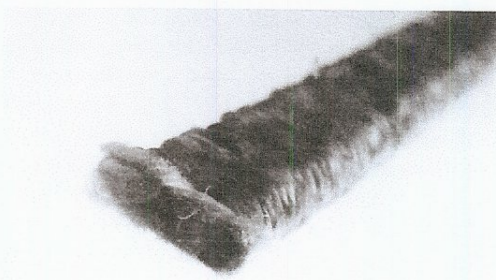


Figure 1 - Fibre reinforced thermoplastic composite rod.

Keywords: Thermoplastic composite; Braiding; Glass fibres; Polypropylene filaments.