



OPTIMIZING THE REPROCESSING CONDITIONS THROUGH INJECTION MOULDING USING RESPONSE SURFACE METHODOLOGY

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This paper presents an investigation aiming to determine the “best trade off” between the operating cost and product quality - through injection moulding- of glass fibre (GF) filled polypropylene (20 wt %). Two reprocessing stages were carried out using 0%, and 50% regrind materials for first, and second, reprocessing stages respectively. The factors investigated were melt temperature, screw speed, holding pressure, holding time and injection rate. Tensile strength, product geometry and operating cost were the response variables investigated. The experimental plan was based on the Box Behnken design; quadratic polynomial equations for predicting the desired responses. The results indicate that the proposed models predict the responses adequately within the limits of processing parameters being used. The regression equations were used to find optimum processing conditions for the desired criteria.