Reprocessing of glass fiber reinforced polypropylene through Injection moulding: Investigation of mechanical, physical and rheological properties

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An investigation is conducted to determine the effect of reprocessing, through injection moulding, short glass fibre filled (20 wt%) polypropylene. Key mechanical and physical properties are monitored throughout the successive reprocessing phases in order to quantify the changes to the material. The fibre length is known to influence the mechanical properties and here the fibre length distribution is measured, again over the successive processing steps. This distribution is observed to show a reduction in average fibre length even within the first processing stage using virgin material. Processing parameters linked with melt plastication (screw rotation rate and back pressure) are observed to influence the average fibre length of the material entering the mould.