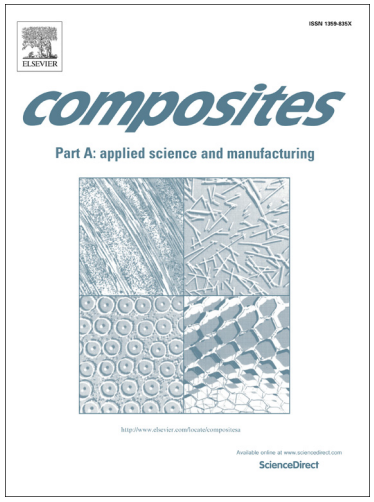

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ABSTRACT

This paper presents the development of a low-cost carbon fibre moulding compound using an automated spray deposition process. Directed Fibre Compounding (DFC) is used to produce charge packs directly from low cost carbon fibre tows and liquid epoxy resin. A range of material and process related parameters have been studied to understand their influence on the level of macroscopic charge flow, in an attempt to produce a carbon fibre moulding compound with similar flow characteristics to conventional glass fibre SMCs.

Charge packs covering just 40% of the mould can be effectively used to process DFC, without detrimentally affecting void content, fibre distribution and mechanical properties. Tensile stiffness and strength values of 36GPa and 320MPa are reported for isotropic materials (100% charge coverage), which increase to 46GPa and 408MPa with flow induced alignment (50% charge coverage) at 50% fibre volume fraction.

KEYWORDS Compression moulding, SMC, Carbon fibre