

STRAIN-LIFE FATIGUE BEHAVIOUR OF LONG GLASS FIBRE REINFORCED POLYPROPYLENE

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Fibre-reinforced thermoplastics (FR-TPs) are experiencing significant growth in the automotive industry, in applications which are load bearing and often in high temperature and corrosive environments. To use any material in a load bearing application, one needs to understand its long-term performance, such as creep under predominantly sustained loads, or fatigue under predominantly cyclic loads. This is perhaps even more important for engineering plastics because of their strong viscoelastic behaviour.

This paper presents follow-up analyses to prior work presented on fatigue of long glass fibre reinforced polypropylene (LGFR-PP). Four grades of LGFR-PP were tested under strain-control fatigue at the application temperature of 120C. For many years, metals have been characterized by the strain life fatigue approach. The objective of this paper is to determine whether some of the techniques used for metals can be applied to this LGFR-PP material.