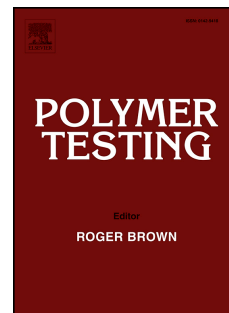


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Material Properties

An experimental investigation of the combined influence of notch size and fiber orientation on the fatigue strength of a short glass fiber reinforced polyamide 6

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Abstract

An experimental study of the fatigue strength of injection moulded short fiber reinforced polyamide plates is presented, which investigated the combined effect of notch tip radius and injection gate position on injection moulded specimens. Fatigue tests were conducted on samples having two symmetric V-shaped notches, with a fillet radius varying from 0.5 to 2 mm. The injection moulding conditions and resulting fiber orientation distribution were varied by injecting the plates longitudinally and laterally. For the same type of injection gate, the influence of the notch root radius appeared to be negligible, with the exception of the smallest radius which had a lower strength. Measurements of fibre orientation showed that the smallest radius modified the local fibre structure, and fatigue crack growth observations showed that the crack propagation phase become dominant with the smallest radius.

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