

Use of Relevant, Non-Standard Mechanical Characterization of Fiber-Reinforced Thermoplastics for Structural Applications

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Abstract

Fiber-reinforced thermoplastics have advanced in recent years and are beginning to be used extensively in semi-structural or structural components in the automotive industry. For use in such applications, the materials need to exhibit certain levels of mechanical performance, such as stiffness, strength and toughness. In addition, these structural applications may require that the materials meet performance criteria under fatigue loading and/or crash loading. This presentation will discuss methodology to characterize fiber reinforced thermoplastics for fatigue performance, and methodology for measuring high strain-rate performance. The relevancy of understanding the materials' behaviour in these non-standard modes will be explained.