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# Thermal Properties of Polyetherimide/Polycarbonate Blends for Advanced Applications

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## Abstract

Polyetherimide (PEI) / Polycarbonate (PC) blends were prepared and their thermal behaviour was evaluated in the perspective of an improved processability, thus favouring the use as feeding material for a Fusion Deposition Modelling (FDM) 3D printing machine. PEI/PC blends obtained with a batch mixer were characterized by the means of Thermogravimetric (TG) and Differential Thermogravimetric (DTG) analysis and Differential Scanning Calorimetry (DSC). The parameters associated with the physical properties of the various blends were evaluated and compared with those obtained for the pristine polymers. Both thermal and spectroscopic analyses showed the formation of an immiscible blend, with some possible regions of partial miscibility, furthermore the glass transition temperature ( $T_g$ ) values demonstrated that the presence of PC in the blend allowed an important lowering of the viscosity, thus meaning an improved processability. Finally, the TGA and DSC results were compared with those obtained for Ultem 9085 that is the standard PEI grade for FDM printing in advanced applications developed by Stratasys, Ltd.

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