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Thermomechanical Anisotropy and Flowability of Talc and Glass Fiber Reinforced Multiphase Polymer Composites

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Abstract

For fillers reinforced polymer composites, the material properties of the composites are affected by the dispersion and orientation of the inclusions. In particular, high aspect ratio inclusions such as glass fibers in the polymer matrix generate the mechanical or thermomechanical anisotropy of the composites that are critical to the dimensional stability, flowability, toughness, and strength of the final products. We investigate the microstructural anisotropy of multiphase polymer composites composed of talcs and glass fibers to characterize the anisotropic thermomechanical properties of the composites. The internal structure of the composites is observed by using an X-ray microtomography to characterize fiber length distributions. The fiber length distributions are fitted to the

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