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Extrusion and characterization of nanoclay filled polypropylene

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ABSTRACT

In recent years, the interest in nanocomposites has grown exponentially. However, the dispersion of polar nanoclay in an apolar thermoplastic matrix remains the key issue. In this manuscript, the process factors affecting the dispersion of nanoclays in a polypropylene matrix are studied. Both the processing of nanocomposites using twin screw and single screw extruders are compared. As the tensile properties of the material are influenced by the dispersion, these characteristics are used for a straightforward evaluation of the different processing parameters. The main goal of this study is to optimize the extrusion process parameters and to evaluate their influence on the strength properties of the material. Variations in properties were noticed for different screw speeds and for different compositions of the starting materials.

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