

Improvement of Mechanical Properties of Recycled High-Density and Low-Density Polyethylene Blends through Extrusion, Reinforcement, and Compatibilization Approaches

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Abstract : In the literature, the elaboration of polymer blends based on recycled HDPE and LDPE is challenging because of the non-miscibility. Ensuring the compatibility of blends is one of the challenges; this study will discuss the different methods to be adopted to assess the compatibility of polymer blends. The first one aims to act on the extrusion process while varying the speed, flow rate, and residence time. The second method has as its purpose the use of grafted anhydride maleic elastomer chains as a compatibilizer. The results of the formulations will be characterized by means of differential scanning calorimetric (DSC) as well as mechanical tensile and bending tests to assess whether pipes made from recycled polyethylene meet the standards.

Keywords : recycled HDPE, LDPE, compatibilizer, mechanical tests

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