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## Mechanical & morphological investigation of HDPE-PBI fiber reinforced composites

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High density polyethylene (HDPE) and poly benzimidazole fiber (PBI) composites were prepared from masterbatch by melt blending in twin screw extruder (TSE). The physical properties of PBI fiber reinforced HDPE composite samples (1%, 2% and 4%) were investigated. The mechanical and morphological properties of composites were characterized by tensile tests (universal testing machine) and Scanning electron microscopy (SEM). SEM images reveal the homogeneous distribution and dispersion of the fiber in the polymer matrix. The evidence of homogeneous distribution was verified by the considerable high values of yield stress and elastic modulus. Adding the fiber fraction to a small content of 4%, the yield stress improved by 14.64%. The tensile modulus showed an improvement of 24.6% at the same fiber content.

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