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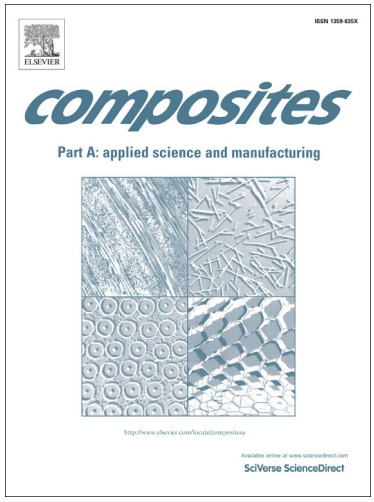

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Enhanced sound insulation and mechanical properties of LDPE/mica composites through multilayered distribution and orientation of the mica

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Abstract: In this work, the composites with multilayered distribution of the mica were fabricated by a multilayer coextrusion technique. The influence of layer number on sound insulation and mechanical properties of multilayered composites was investigated. The distribution, dispersion and orientation of mica particulates in composites were characterized by PLM and SEM. The sound insulation property of composites was measured by four microphone impedance tube. PLM and SEM images showed that the mica was distributed as the multilayered structure along the thickness direction of the composites. With the increase of layer number, more mica aggregates delaminated into thin flakes and aligned parallel to the flow direction. Compared to the conventional composites, the multilayered composites showed the enhanced sound insulation efficiency and mechanical properties. The discontinuity of sound impedance and the improved stiffness were considered to play a crucial role in the improvement of sound transmission loss.

Keywords: A Polymer-matrix composites, B Vibration, D Scanning electron

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