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The Morphology and Mechanical Relaxation of Polyethylene with Talc under Cyclic Loading

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Stress-strain relationship and the “debonding-cavitation process” of polymer composites were studied using low density polyethylene LDPE filled with talc particles. Emphasis was placed on the evolution of the stress-strain hysteresis loops in the cyclic process. The morphology and deformation mechanisms of composites were studied by means of scanning electron microscopy (SEM). Debonding and cavitation at the matrix/particle interfaces were identified as the major deformation mechanisms of the LDPE/talc composites after cyclic experiments.