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MECHANICAL BEHAVIOUR OF LDPE BLENDS CONTAINING WOOD DERIVATIVE IN NORMAL AND ACCELERATED WEATHERING CONDITIONS

Abstract

Bio-composites containing wood derivatives have attracted a significant interest in the last decades, thanks to the specific advantages they can grant in comparison with the classic mineral filler/plastic composites. These include mainly the improved environmental performance, due to the use of biodegradable materials and the reduction in the use of non-renewable (oil based) resources throughout the whole life cycle of the composite. Significant interest has also arisen about the outdoor performance of these composites, in particular their resistance to photo-oxidation.In this work, several composites with polyethylene matrix and wood flour containing or not maleated elastomer were prepared by melt mixing and subjected to accelerated UV weathering. The effects of the exposure to UV radiation were studied analyzing some mechanical properties and the chemical changes by FT-IR spectroscopy. The photo-oxidation mechanisms of both the polymer and the filler were taken into account.

Keywords: biocomposite, filler, biodegrdation, weathering

Streszczenie

Przedstawiono właściwości kompozytów polietylenu z mączką drzewną poddanych przyspieszonemu starzeniu. Oceniano wpływ UV na właściwości wytrzymałościowe oraz strukturę chemiczną. Porównano wpływ dodatku kompatybilizatora na właściwości kompozytów.

Słowa kluczowe: biokompozyt, napełniacz, biodegradacja, starzenie

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