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Accelerated Ageing of Unidirectional Flax Fibers Reinforced Recycled Polypropylene Composites

Authors : Lara Alam, Laetitia Van-Schoors, Olivier Sicot, Benoit Piezel, Shahram Aivazzadeh

Abstract : Over the last decades, worldwide environmental awareness has grown due to the depletion of raw material resources and global warming. This awareness has prompted the development of new products more environmentally friendly. Among these products are biocomposite materials reinforced with natural fibers. The main challenge in developing the use of biocomposites in exterior applications is the lack of knowledge about their durability and the evolution of their mechanical and physico-chemical properties in the long term. Few studies have been carried out on the photooxidation of unidirectional (UD) composites based on recycled matrix, which is the aim of this work. For this purpose, UD flax fiber composites based on recycled polypropylene were prepared by thermocompression. An accelerated aging test was carried out using a xenon arc WeatherOmeter. The consequences of UV exposure on the chemical composition and morphology of the surface of composites as well as on their tensile mechanical properties have been reported. The results showed that accelerated aging had a significant effect on the surface of these composites while it had little impact on their mechanical properties.

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