

Development of Plantar Insoles Reinforcement Using Biocomposites

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Abstract : Due to the great effort suffered by foot during movement, is of great importance to count on a shoe that has a proper structure and excellent support tread to prevent the immediate and long-term consequences in all parts of the body. In this sense, new reinforcements of insoles with high impact absorption were developed in this work, from a polyurethane (PU) biocomposite derived from castor oil reinforced or not with palm fibers. These insoles have been obtained from the mixture with polyol prepolymer (diisocyanate) and subsequently were evaluated morphologically, mechanically and by thermal analysis. The results revealed that the biocomposites showed lower flexural strength, higher impact strength and open interconnected pores in their microstructure, but with smaller cells and degradation temperature slightly higher compared to the marketed material, showing interesting properties for a possible application as reinforcement of insoles.

Keywords : composite, polyurethane insole, palm fibers, plantar insoles reinforcement

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