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### THERMOPLASTIC COMPOSITES FROM THE RESIDUES FOOTWEAR INDUSTRY

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Thermoplastic composites (polymer matrix reinforced or filled with fiber or filler) have received considerable attention for their performance when compared to pure matrix. This product is an alternative solution for the management of the footwear industry waste. The relative share of leather as a raw material in the Brazilian footwear industry has decreased from 37.4% in the early 1970s to 21.4% in the 1990s. This fact was due to the introduction of alternative materials in footwear production such as EVA, TR, SBR, PU, PP, HDPE, LDPE, PVC, PS in heels, soles, and non-woven insoles with the goal to reduce costs, especially in the domestic market production. However, this brought about changes in the characteristics of the waste generated by the factories, which in turn called for improved technology for the management, sorting and appropriate disposal of waste. Therefore, the incorporation of this waste in thermoplastic matrix minimizes the environmental problems caused by the presence of this residual material derived from industrial activities. The aim of this work is to develop new products (thermoplastic composite) from shoe industry residues and to evaluate their physical and mechanical properties in order to guide their application. In this study was used PE and PP waste as matrix and PU waste as filler. These residues were ground. The composites matrix/filler in weight ratio of 90/10, 85/15 and 80/20 were processed in a simple screw extruder and then these samples in the form of pellets were molded in the plate form by thermal compression. The composites were characterized in terms of their physical (density and water absorption) and mechanical properties (tensile, hardness and impact resistance). Preliminary results showed that the PP/PU composites had lower density and higher water absorption than the PE/PU composites. Mechanical tests are being realized and will be showed in the complete work.