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## **Development and Characterization of Biodegradable Composites for Automotive Parts**

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The search for new biodegradable structural materials is becoming more and more important nowadays, especially for environmental reasons. One example is the automotive industry. In fact, due to legislation, automotive industry is being obliged to increase the amount of recyclable components in end-of life vehicles.

This work is an attempt to develop new biodegradable composites based on renewable resources, able to be used as vehicle components. A co-rotating twin screw extruder was used to compound native corn starch, PLA and a commercial thermoplastic blend of corn starch and cellulose acetate with pine fibres. The pine fibres were previously submitted to different superficial treatments. The compounding conditions were adjusted to the different matrices and the reinforcement percentage was kept the same for comparison reasons. The reinforced materials were injection moulded into tensile specimens and the mechanical properties determined. Optical and scanning electron microscopies were also performed in order to evaluate the microstructure of the mouldings in terms of fibre distribution and interface between the fibres and the matrices. The obtained results are discussed regarding the fibre-matrix interfaces and the degradation mechanisms occurred during the processing operations.