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## ECOCOMPOSITES OBTAINED FROM MATER-BI<sup>®</sup> AND LIGNOCELLULOSIC FILLERS

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Biodegradable polymers are currently of great interest because of their potential to substitute traditional, non-biodegradable polymers. In addition, the use of lignocellulosic fillers can further increase the attractiveness of such materials because of the reduction of costs and associated environmental impacts, the interesting mechanical properties and aesthetic appearance achievable. However, no actual biodegradability can be assured if these composites are prepared by using traditional non-biodegradable polymer matrices. This limitation can be overcome only by replacing them with biodegradable ones, such as Mater-Bi<sup>®</sup>. With regard to the lignocellulosic filler, wood flour and fibers are used in prevalence. However, it would be more of interest to optimize the use of natural resources by taking into account lignocellulosic fillers alternative to wood, such as kenaf, hemp, sisal, jute. In the present work, a detailed investigation on the behaviour of a Mater-Bi based ecocomposites filled with wood flour or kenaf fibers was performed. The effect of the different aspect ratios, the intrinsic features of the fillers and thermal pre-treatments on the rheological, mechanical and morphological properties of the obtained composites was investigated. Furthermore, a biodegradability assessment in a real (not laboratory) environment was carried out. This assessment was based on weight loss measurements on the specimens immersed in an active sewage sludge reactor and their average surface roughness was also measured. The tests were performed both in summer and winter conditions. SEM analysis was also carried out on the samples. The biocomposites showed interesting features; in particular, kenaf fibers allowed obtaining better mechanical properties. Biodegradation rates were higher for the composites rather than for the neat matrix, especially in summer conditions, however thermal pre-treatments had a negative effect on them.