

Structural analyse of biodegradable printed samples

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Abstract.

Biodegradable polymers fulfil the demands of secure environment and life by using significant quantities of renewable raw materials derived from various chains, wood, vegetable oils, grains, etc. Renewable sources of thermoplastic materials offer a more sustainable alternative from ecologically and economically point of view. The complete bio-degradability of polymers contribute to a carbon dioxide diminution emanated in the atmosphere, provided by the reduction of non-biodegradable polymer production and implicitly by the reduction of waste quantities. Also, the use of renewable raw materials broadens the raw materials basis, reduces this way the fossil resources dependency. The aim of the present study was to investigate the chemical and physical structure of two printed lignin/PLA based biodegradable polymers, Fiber Wood and Arboblend V2 Nature reinforced with Extrudr BDP Pearl. The analyses methods used were Fourier-transform infrared spectroscopy (FTIR) and Scanning electron microscope (SEM) analysis, but also were realized correlations with some previous results published by this research team. The revealed information's confirm the biodegradable structure of the printed samples, thus, facilitating the understanding of some mechanical and thermal characteristics, making much easier to offer some recommendations regarding the substitution of nonbiodegradable synthetic thermoplastics with Fiber Wood and Arboblend V2 Nature reinforced with Extrudr BDP Pear materials.

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