

**Effect of ionizing radiation on composites of wood flour in polyethylene matrix using barium titanate as coupling agent**

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This work deals with the effects of ionizing radiation on the properties of wood flour composites in polyethylene matrix, using barium titanate as a coupling agent. The investigated compositions were carried out with polyethylene/wood flour with barium titanate using different wood flour concentrations of 10%, 20% and 30%. Subsequently, the samples were molded by injection, irradiated and submitted to thermal and mechanical tests. The mechanical properties (hardness, impact strength, tensile strength, flexural strength, impact strength and hardness, and thermal analysis of temperature of thermal distortion (HDT) and melt flow index (MFI)), as well as the thermal properties (thermal distortion of the composites non irradiated and irradiated were determined. The samples irradiation doses were of 10, 20 and 30kGy in an electron accelerator. Regarding the thermal and mechanical properties of non-irradiated samples, the incorporation of wood flour to polyethylene, resulted in a decrease of impact strength, tensile strength and melt flow index and an increase in hardness and HDT, showing that the wood flour are ineffective as reinforcement agent having as principal effects the enhancement of the compound biodegradation effect, but acts like biodegradable filler. There is not change of Vicat softening temperature. As to the irradiated samples, it was observed a decrease in the impact strength, tensile strength, HDT, and thermal distortion temperature and an increase in the hardness, flexural strength and tensile strength. The Vicat softening temperature no shows change.

**Keywords:** PE composites, wood flour, barium titanate, ionizing radiation.