

IRAP038

**Study of Gamma Radiation Effects on Thermal and Mechanical Properties of a Polypropylene Composite with Curaua Fibers**

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This work is concerned with the study of thermal and mechanical behavior of glass fiber and curaua fiber reinforced polypropylene composites. The treatment of the curaua fibers was executed in alkaline solution (10% wt NaOH). After the treatment, the fibers were washed with neutral detergent and dried up in stove. A coupling agent was used (maleic anhydride) with 2% in weight to increase the adhesion of the fiber/matrix interface. This composite was irradiated with gamma radiation in the doses of 5, 15 and 30 kGy in order to evaluate possible changes in the adhesion between the fibers and the matrix. The thermal behavior was evaluated using DSC and TGA. The mechanical behavior was evaluated using tensile strength and elongation test to compare different composites with non-reinforced polypropylene resin composite. The morphology of the fracture surface of the composites was observed using scanning electron microscopy (SEM). The mechanical behavior was realized and there not was changed in tensile strength and elongation test to composites irradiated with gamma radiation in the doses 5, 15 and 30 kGy.

**Keywords:** Polypropylene, composites, SEM, curaua fibers, gamma radiation.