P10. IONIZING RADIATION EFFECTS MECHANICAL AND THERMAL PROPERTIES IN POLYAMIDE 6 WITH COLLOIDAL SILICON DIOXIDE (AEROSIL®)

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To evaluate polymers development with new fillers, colloidal silicon dioxide (AEROSIL®) was used in polyamide 6 (PA 6). AEROSIL® is an amorphous substance with low density that satisfies the consumer's demands in their applications such as fillers. For this study, it used compounds of PA 6 with three different percentage of AEROSIL®: 1 %, 3 %, and 6 %. In this sense, all the formulations were irradiated with electron beam with different doses. In addition, it was studied the effects of the ionizing radiation in mechanical properties such as tensile strength, elongation at break and impact resistance, where they were compared with non-irradiated samples. In the present work, DSC and TGA were also employed to observe the changes in thermal properties before and after irradiation. Lastly, it was determined the best formulation of AEROSIL® to be applied in compounds of polyamide 6.