



**CREEP-RECOVERY OF NANOCOMPOSITES: AN INNOVATIVE METHOD TO INVESTIGATE THE EFFECT OF PROCESSING CONDITIONS ON THE DISPERSION OF NANOPARTICLES IN POLYMERS**

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In this study, creep-recovery experiments are used as a novel investigation method of the effect of processing conditions on the dispersion grade of nanosilica (SiO<sub>2</sub>) in an atactic polystyrene. The nanocomposites, containing 1 wt% of SiO<sub>2</sub>, were prepared by melt-blending using a microcompounder. The effect of the mixing speed on the dispersion grade of the nanocomposites was examined by microscopic (Transmission Electron Microscopy) and rheological methods (conventional dynamic-mechanical measurements and creep-recovery). The creep-recovery experiments proved to be a powerful tool for the sensitive characterization of the dispersion grade of the nanoparticles. Contrary to Transmission Electron Microscopy, this method presents the great advantages of being quick, straightforward and provides a global investigation of relatively large amounts of materials. Thanks to this, an optimal mixing speed for the preparation of these SiO<sub>2</sub>/PS nanocomposites was found.