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# MORPHOLOGY AND SURFACE ENERGY OF PET POST-CONSUMER AFTER THE CHEMICAL TREATMENT

A. K. R. Oliveira[a], C. H. M. Beraldo [a], R. M. C. Santana [a]*

*a Materials Department-Federal University of Rio Grande do Sul-UFRGS, Porto Alegre-RS/Brazil*

*Corresponding author: ruth.santana@.ufrgs.br*

The high amount of post-consumer plastic is increasing every day, according to this reality, various techniques of separation and recycling have been developed and used, among them are screened by analysis of infrared or laser scanning and flotation/sedimentation that is most used to have a more affordable cost. But it cannot be used for all polymers, due to that in some cases it is not efficient, as is the case of PET and PVC, they have similar densities (1,33 to 1,37 g/cm$^3$), leading them to deposited on the bottom of the flotation tank. For the separation to be performed, one alternative is to treat the surface of the PVC with alkaline solutions making it more hydrophilic. The problem with this alkali treatment is in the possible degradation of PET, which may cause alkaline hydrolysis decreases the properties of recycled PET. Therefore the main objective of this study was to evaluate the degradation of PET and PVC after the chemical treatment performed with NaOH solution for cleaning and surface modification of PET to make it more hydrophilic and facilitate the separation by flotation of PET/PVC. The samples were treated in NaOH solution at concentrations of 1 and 4% wt and temperatures of 25°C and 80°C and time of bath of 15 and 30 minutes, following were dried at 80°C for 3 and 24 hours. The samples were characterized by physical testing of surface energy, contact angle and SEM morphology (Scanning Electron Microscopy). Preliminary results showed that the surface energy of PVC remained constant. In the full paper will present the other results obtained during the development of this study.