



### EFFECT OF REACTIVE COMPATIBILIZATION ON CLAY PARTITIONING IN PP/PS BLEND NANOCOMPOSITES

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The main objective of the present work was to study the effect of reactive compatibilization on the partitioning of clay (Cloisite 15A) in PP/PS/Clay blend nanocomposites with PP as the major phase. All the blend nanocomposites and reference samples were prepared in an internal mixer. Rheology, morphology and mechanical properties of different samples were studied. Using linear viscoelastic measurements it was predicted that in un-compatibilized PP/PS blends, clay has more tendencies to locate at the PP/PS interface while in reactive compatibilized blends it preferentially migrates into the dispersed PS phase. The results of SEM, XRD and TGA analysis confirmed the reliability of the predicted results from rheological measurements. The results also showed that priority of clay feeding and/or reactive compatibilization steps can affect the clay partitioning and therefore different properties of reactively compatibilized PP/PS/Clay blend nanocomposites. The reactive compatibilization was less successful in the presence of clay due to the localization of the clay at the blend interface and therefore its inhibition effect on PP-g-PS copolymer formation. Clarifying of the role of different parameters on the clay partitioning enabled us to tailor different PP/PS/Clay blend nanocomposites with a desired clay location and therefore with required properties.