

Tailoring the morphology of PLA/PBAT/PA ternary blends

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The objective of this work is to mimic the morphology of high impact polystyrene (core-shell inclusions in PS) in the case of a PLA matrix in order to reinforce its impact strength. The present communication focusses on the strategy developed to obtain the targeted morphology, i.e. to have micron size subinclusions embedded in a second phase itself embedded into a PLA matrix. The challenge is to drive the right polymer at its right location and to be able to control the sub-inclusion and inclusion sizes.

The spatial relative location of the phases in the blend is controlled by the thermodynamics of the system and thus by the interfacial tension between the components [1-2]. The relative size of the inclusions is controlled in binary blends by volume fraction, Capillary number and viscosity ratio.

This communication will describe how to theoretically predict a pre-defined morphology by playing with these different parameters and how to obtain it.

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References:

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