

Supporting Information

Manipulation of Multiphase Morphology in Reactive Blending System of OBC/PLA/EGMA

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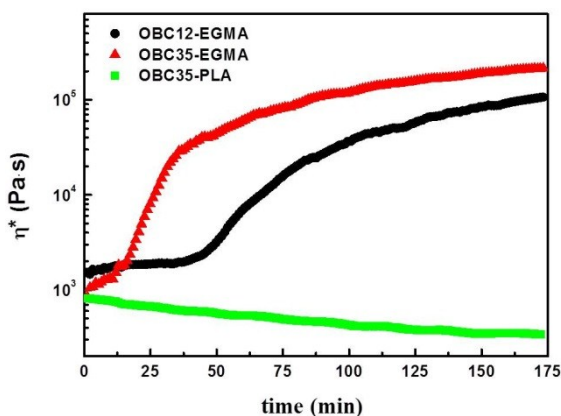


Figure S1. Plots of η^* (190 °C) vs. time for OBC12/EGMA, OBC35/EGMA, and OBC35/PLA.

Fig. S1 shows that the complex viscosities of OBC12/EGMA and OBC35/EGMA increase with time, indicating a strong interaction or chain entanglement^[1] in these two blend pairs. In addition, η^* of polymer pair of OBC35/EGMA rises faster and ends up with higher value, suggesting stronger interaction between these two polymers as well.

[1] H. Y. Kim, U. Jeong and J. K. Kim, *Macromolecules*, 2003, 36, 1594-1602.

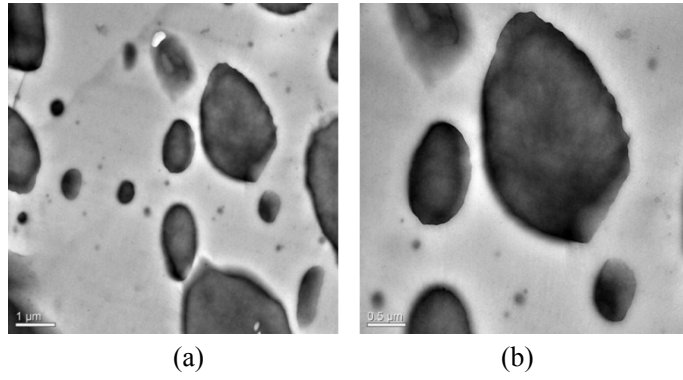


Figure S2. TEM micrographs of PLA/EGMA 7/3 binary blend mixed for 4 min: (a) low magnification, (b) higher magnification. (the scale bar is 1 μm for (a), and 500 nm for (b))

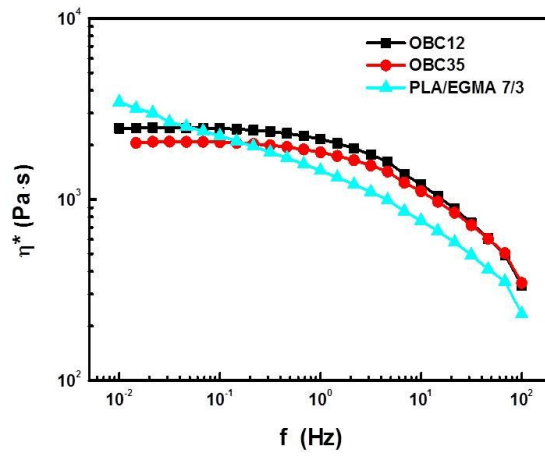


Figure S3. Plot of η^* at 190 °C vs frequency for OBC12, OBC35, and PLA/EGMA 7/3.

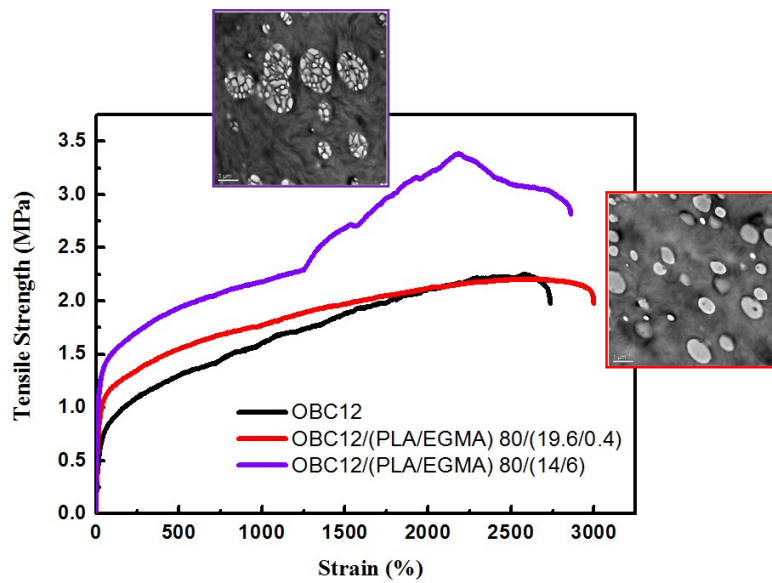


Figure S4. Tensile mechanical curves for pure OBC and ternary OBC/PLA/EGMA blends.

The mechanical enhancement is very limited in the OBC/PLA/EGMA blend with core-shell phase morphology, as compared to that of pure OBC. Nevertheless, obvious increment in tensile strength is realized for the ternary blend with salami-like phase morphology, and the ductility can be reserved well. This result suggests the importance of dispersed-phase morphology.