

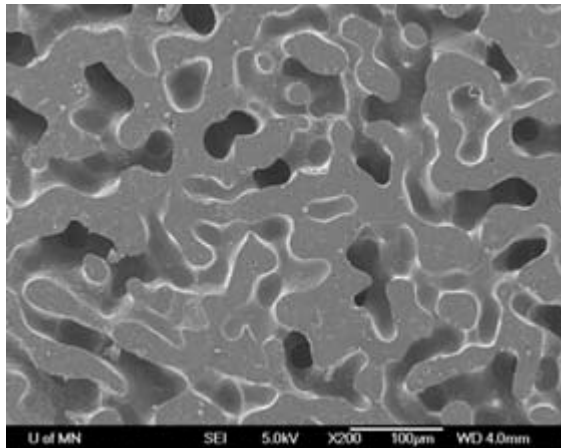
# Cocontinuous Immiscible Polymer Blends

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## WHAT WE DO

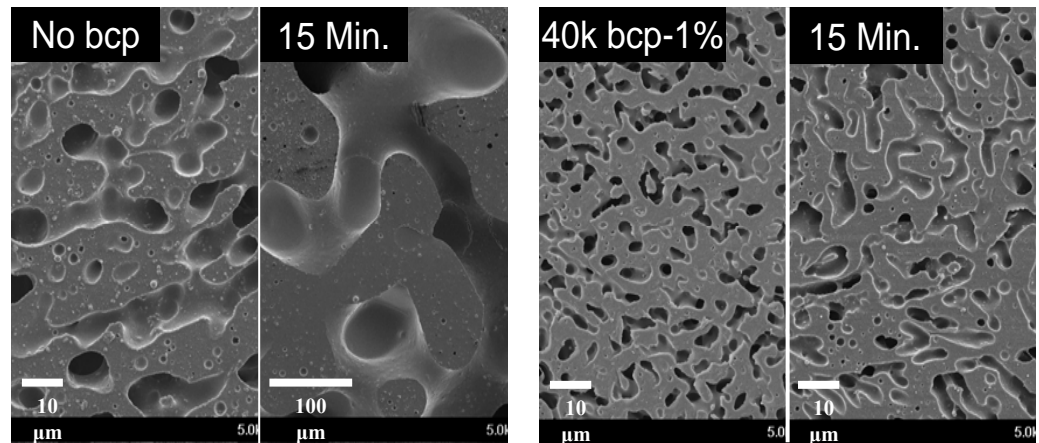
- ◆ Determine the range of volume fractions where cocontinuous morphologies form using SEM and image analysis.
- ◆ Study evolution of cocontinuous morphologies during annealing.
- ◆ Study stabilization effect of block copolymers.



SEM micrograph of a cocontinuous PS/PE blend (PS extracted).

## MAJOR OBSERVATIONS

- ◆ Range of cocontinuity for PS/PEO system is 35-65 wt% PS, 35-70 wt% PS for PS/PE system, and 35-55 wt% PS for PS/PMMA system.
- ◆ An optimal molecular weight block copolymer was found to stabilize PS/PE and PS/PMMA blends during annealing.



SEM micrographs of cocontinuous PS/PE blends (PS extracted) with (right) and without (left) block copolymer. The 40k bcp stabilizes the blend during annealing. The 15 Min. denotes time of annealing at 170 °C.

## Publications

- ◆ Galloway J. A., et al., Polymer, Vol. 43 (17), 2002, pp. 4715-22.
- ◆ Galloway J. A., et al., Polym Eng Sci, Vol. 44 (4), 2004, pp. 714-27.
- ◆ Galloway J. A., et al., Polymer, Vol. 46, 2005, pp. 183-191.
- ◆ Pyun A., et al., Macromolecules, 2007, in print.