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Chemical composition effects on the crazing of PS-PMMA block copolymers WON KIM, Rensselaer Polytechnic Institute, Department of Chemistry and Chemical Biology, JUNWON HAN, Rensselaer Polytechnic Institute, Department of Chemical and Biological Engineering, HOICHANG YANG, Rensselaer Polytechnic Institute, Rensselaer Nanotechnology Center, CHANG RYU, Rensselaer Polytechnic Institute, Department of Chemistry and Chemical Biology — Using a large scale separation technique adopting interaction chromatography, we have fractionated as-synthesized PS-PMMA block copolymers in terms of the average chemical composition difference, while maintaining the same average molecular weight. Copper grid technique with optical, atomic force and transmission electron microscopy has been employed for the fracture study to reveal how the composition-dependent morphology affect the crazing of the glassy-glassy block copolymers, while maintaining the same level of Chi*N. In addition, we study how the thermal annealing affects the median strains for crazing and catastrophic failure.

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