

Abstract Submitted
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Composition and Structure Changes of the Ionic Aggregates with Acid Content and Neutralization Level in Poly (styrene-*co*-methacrylic acid) Ionomers WENQIN WANG, TSUNG-TA CHAN, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, Pennsylvania 19104-6272, ANDREW PERKOWSKI, SHULAMITH SCHLICK, Department of Chemistry and Biochemistry, University of Detroit Mercy, Detroit, Michigan 48221, KAREN I. WINEY, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, Pennsylvania 19104 — The morphology of poly(styrene-*co*-methacrylic acid) (SMAA) copolymers neutralized with copper(II), and the corresponding local structures and compositions of ionic aggregates were investigated as a function of acid content and level of neutralization. Using X-ray scattering and scanning transmission electron microscopy, the sizes of ionic aggregates in Cu(II)-neutralized SMAA were found to be independent of acid content and neutralization level. The number density of ionic aggregates increased with acid content and neutralization level, but the increase is significantly less than expected for a fixed ionic aggregate composition. Electron spin resonance spectroscopy indicates **three** types of cation sites with corresponding relative population changing with acid content, which further indicates a compositional variation of ionic aggregates with neutralization. The correlation between morphology and compositional evolution of the ionic aggregates will be discussed.

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