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Morphology of precise acid copolymers neutralized with monovalent cations MICHELLE SEITZ, University of Pennsylvania, KATHLEEN OPPER, DuPont, KENNETH WAGENER, University of Florida, KAREN WINEY, University of Pennsylvania — Poly(ethylene-co-acrylic acid) copolymers with precisely spaced acid groups along the strictly linear chain backbone form the basis of a new family of ionomers with unprecedented molecular uniformity. These copolymers were neutralized with monovalent cations (Li, Na, and Cs) and their morphologies were studied using X-ray scattering. In order to more fully understand the ionic aggregation in these systems, both the low and high angle features are considered. At low angle a sharp ionomer peak arises from interaggregate interference and shifts with acid spacing. At high angle, the amorphous halo from the average backbone separation is observed. For materials with an acid group on every 9th carbon, additional high angle scattering is observed which may be related to either the internal aggregate structure or isolated ion pairs.

Michelle Seitz
University of Pennsylvania

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