

Abstract Submitted
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Ionic Aggregation and Microphase Separation in Sulfonated Polyester Multiblock Copolymers and Ionomers MICHAEL O'REILLY, University of Pennsylvania, GREGORY TUDRYN, RALPH COLBY, Pennsylvania State University, KAREN WINEY, University of Pennsylvania — Polyethylene oxide (PEO) has been copolymerized with polytetramethylene oxide (PTMO) using a sulfonated phthalate ionic linker between blocks. The product is a linear multiblock copolymer, which is neutralized with lithium and sodium. We used X-ray scattering to investigate the morphology from 25 °C to 200 °C. The results show that this copolymer exhibits three distinct morphology characteristics. First, microphase separation exists between the PEO and PTMO phases. Second, ionic aggregates occur in the PEO microdomains. Finally, the appearance of better defined ionic aggregates occurs in the PTMO microdomains. Ion aggregation and microphase separation are studied as functions of temperature and copolymer molar composition. DRS analysis confirms that ionic aggregation is independent of copolymer composition.

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