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**Network Phase Behavior of ABC Triblock Copolymer-Homopolymer Blends for Nanoporous Membranes** MAEVA TUREAU, THOMAS H. EPPS, III, University of Delaware — ABC-type block copolymers exhibit morphological diversity not found in diblock copolymers and are becoming a versatile route to nanoscale devices. ABC triblocks are capable of self-assembling into triply-periodic network structures with a high degree of internal interfacial area and tailored chemical and mechanical properties. These unique characteristics make ABC triblock network structures ideal candidates for nanoporous membranes. Our work focuses on the morphological behavior near the network phase window in the poly(isoprene-*b*-styrene-*b*-methyl methacrylate) (ISM) system using neat triblocks and selective homopolymer blending. Morphological characterization is accomplished through a combination of small angle X-ray scattering (SAXS), transmission electron microscopy (TEM), and dynamic mechanical analysis (DMA) techniques. Neat triblocks exhibit network structures while blended systems show phase transitions including an alternating gyroid to lamellar phase transition. The neat and blended systems are mapped on a phase diagram to locate the network phase window.

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