

Ionic liquid filled polymersomes via microfluidics: Fabrication and Characterization

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Polymersomes are promising carrier drawing attention for their ability in encapsulating a broad range of molecules. Setting ionic liquid as the internal fluid inside a thin polymer vesicle enables solubilization of poorly soluble drug, antimicrobial properties, and enhanced thermal stability. Polymersomes with ionic liquid interiors dispersed in an aqueous phase were fabricated in previous research using co-solvent or thin film method. In this work, polymersomes in the same conditions were fabricated via microfluidics. We describe a method to achieve control of the size and stability of polymersomes generated in a microfluidic device. The membrane permeability of the vesicles, as well as the osmotic pressure of the inner ionic liquid, was also determined by monitoring the polymersomes' response to an osmotic gradient. We anticipate that the results of this study will be useful for the characterization of ionic liquid filled polymersomes.