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Self-Assembly of Pluronic Polymers in Protic Ionic Liquids

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Development of alternate templating for mesoporous metals can contribute to various areas, including the development of novel battery electrodes and catalyst scaffolds. Due to their sol-gel properties and drastic rheology changes with temperature at high concentrations, Pluronic triblock copolymers in ionic liquids could potentially be used for templating applications. A high throughput study was conducted using Small Angle X-ray Scattering to understand the nanostructure of the self-assembly of Pluronic polymers as a function of ionic liquid solvophobicity. Representative Pluronic triblock copolymers with varying PEO block lengths, F127 (PEO106–PPO70–PEO106), P123 (PEO20-PPO70-PEO20) and L121 (PEO5–PPO70–PEO5) were investigated in the nitrate based protic ionic liquids of ethylammonium nitrate (EAN), ethanolammonium nitrate (EtAN) and propylammonium nitrate (PAN) using the SAXS/WAXS beamline at the Australian Synchrotron. Complex phase behaviour was observed in the polymer/ionic liquid compositions, with the solvophobicity of the ionic liquids having a noticeable effect on the formation of higher order phases.

References

1. Lopez-Barron Carlos R., Li Dongcui, Caplan Jeffery L., Macromolecules, 2014, 47.21, 7484-7495.
2. Greaves, Tamar L., and Calum Drummond J., Chemical Reviews, 2008, 108, 206-237.

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