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Polyelectrolyte-Surfactant Complexes: A New Class of Organogelators KEVIN CAVICCHI, YUQING LIU, The University of Akron, GUSTAVO GUZMAN, Universidad Nacional de Colombia — Polyelectrolyte-surfactant complexes (PE-SURFs) are a class of polymers generated by neutralizing a polyelectrolyte with an oppositely charged surfactant. It has been found that PE-SURFs composed of polystyrene sulfonate and long chain alkyl dimethyl amines act as good organogelators for a range of hydrophobic, organic solvents. Thermo-reversible organogels are formed by heating and cooling PE-SURF/solvent solutions. The gel transition temperature is influenced by the degree of polymerization, the length of the alkyl side-chain, the solubility parameter of the solvent, and the concentration of the gelator. Freeze-drying and scanning electron microscopy characterization of the resultant xerogels shows the formation of rod- and plate-like network morphologies depending on the system parameters. This behavior is consistent with gelation driven by the self-assembly of the amphiphilic PE-SURFs into micellar networks.

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