

Novel Hydrogels: Preparation and Characterisation

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Hydrogels are cross-linked polymer gels that exhibit a swelling response to changes in environment such as pH or temperature. Previous work has shown that Poly 4-vinyl pyridine hydrogels (cross-linked with di-vinyl benzene) swell at a critical pH, with a swelling ratio that is dependent upon cross-link density.

In this work we present an amphoteric hydrogel system that exhibits a swelling response at two critical pH's corresponding to the pKa's of the component monomers. We also present studies in which the internal structure of hydrogels has been probed by size exclusion experiments, solvent relaxation NMR and Differential Scanning Calorimetry (DSC).