

Abstract: Hydrolyzed polyacrylamide gels immersed in aqueous solutions of poly(ethylene glycol) (PEG) of molecular weight 300 exhibit discontinuous volume change upon continuous increase of the PEG concentration in the external solution. As the duration of hydrolysis increases, that is, as the proportion of the ionic groups on the network chains increases, the critical concentration of PEG required for a discontinuous volume change rises and, also, the magnitude of the volume collapse becomes larger. Experimental results indicate that the gel collapse in PEG solution is due to the osmotic deswelling of the ionic gel rather than due to a complex formation between polyacrylamide and PEG chains.

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