Effects of Synthetic and Measurement Conditions on Elastic Modulus of *poly*-Vinyl Alcohol Gel

by

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Abstract

The elastic modulus of cross-linked PVA (*poly*-vinyl alcohol) gel has been successfully measured by means of a new conventional mechanical indentation testing method. However, the relationship between th concentration of sulfuric acid, a catalytic agent, and the gelation time of PVA gel is not yet clear. Furthermore, there was no sufficient clearance between the indenter of the testing equipment and the PVA-gel-filled vessel. To solve these problems, the effects of synthesis and measurement conditions on the elastic modulus of PVA gel were studied.

An increase in concentration of sulfuric acid shortened the gelation time of PVA gel and the elastic modulus of PVA gel was much less than that previously reported. These results indicated that the differences between the elastic moduli of PVA gels might be due to the deformation of the PVA gel clamped by the inner wall of the vessel.

Keywords: Viscoelasticity, Poly-Vinyl Alcohol (PVA) Gel, Gelation Time, Mechanical Indentation, Elastic Modulus

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