Effect of the Coagulation Bath on the Structure and Mechanical Properties of Gel-Spun Lignin/Poly(vinyl alcohol) Fibers

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EXPERIMENTAL SECTION

Gel Melting Point Measurement

Lignin/PVA solutions were loaded into capillary tube, having one end capped, and gelled in -25 °C 15/85 (v/v) methanol/acetone baths for 10 min. One testing tube holding the capillary tube and thermometer was placed in a Thiele tube (Figure 1S). The Thiele tube filled with silicone oil was heated by a Bunsen burner. Gel melting points were identified as the stationary gel transformed into a flowing liquid. The starting temperature of the transition and the temperature at which all gels were turned into liquid were recorded. The average of the two temperatures was calculated as the gel melting point. At least four gels from each lignin/PVA solution were tested.[1]

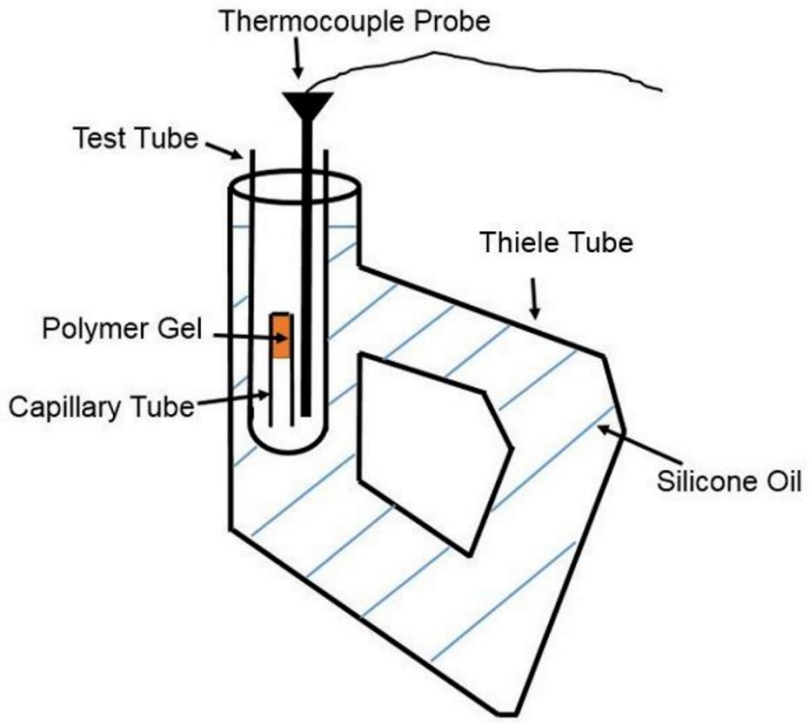

Figure 1S. Illustration of Measurement of Gel Melting of Polymer Gels

[1] Ryan, Charles F., and Paul C. Fleischer Jr. "The Gel Melting Point as a Measure of the Tacticity of Poly(methyl methacrylate)." The Journal of Physical Chemistry 69.10 (1965): 3384-3400