

## **Newly designed polyacrylamide/dextran gels for electrophoresis protein separation: synthesis and characterization**

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### **Abstract :**

Newly designed gels for electrophoresis protein separation were synthesized from acrylamide, *N,N'*-methylenebis (acrylamide) and dextran mixtures. Radical polymerization was initiated by ammonium persulfate and *N,N,N',N'*-tetramethylethylenediamine. The time dependence of absorbance during polymerization was monitored using UV-visible spectroscopy. The exothermic polymerization process exhibited a sharp rise of temperature reminiscent of the Trommsdorff effect. The swelling kinetics of the synthesized gels was examined in deionized water and buffer solutions. One of the challenges was to find an alternative to commercial products, sold as mixtures with no detailed chemical contents, commonly used in sodium dodecylsulfate polyacrylamide gel electrophoresis (SDS-PAGE) for protein separation. For this reason, a systematic comparison was made of the properties of one of the most commonly used commercial gels, Duracryl™ from Genomics Solution Inc., and those of the synthesized polyacrylamide/dextran gels.

**Keywords :** polyacrylamide/dextran gels; Duracryl™; SDS-PAGE; swelling; absorbance.

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