

**Preparation and Characterization of Ficoll Sulfate,
a Sulfated Synthetic Polysaccharide, for use in Transport Studies**

by

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Submitted to the Department of Chemical Engineering
in May 1979 in partial fulfillment of
the requirements for the degree of
Master of Science in Chemical Engineering

Abstract

Ficoll (a cross-linked synthetic polysaccharide) was sulfated and its properties compared to those of dextran sulfate (an uncross-linked synthetic polysaccharide). An average value of 13% by weight of sulfur was introduced by the sulfation reaction. The suitability of ficoll sulfate for use in transport studies was investigated.

Viscosity measurements were made and the increase in intrinsic viscosity with decreasing ionic strength was found to be far less for ficoll sulfate than for dextran sulfate. This behavior was attributed to the cross-linked structure and viewed as evidence for the greater rigidity of ficoll sulfate in solution.

The behavior of ficoll sulfate during hydrolysis and radio active labeling conditions was compared to that of dextran sulfate. Molecular size determinations, viscometry, and sulfate determinations were used to follow the behavior of the polymers during these reactions. Ficoll sulfate was found to be far more sensitive to the acid conditions of hydrolysis than was dextran sulfate. Neither molecule showed significant molecular weight breakdown during the labeling and both showed significant sulfate loss during both reactions.

Ficoll sulfate was shown to possess many of the characteristics of an ideal molecule for transport studies.

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