



# SEC Analysis of Dextrans

## Application Note

### Authors

Greg Saunders, Ben MacCreath  
Agilent Technologies, Inc.

### Introduction

Dextran polysaccharides comprise linked  $\alpha$ -D-glucose units with short side chains. These compounds are synthesized in aqueous solutions from fermentation disaccharides produced by lactobacillae such as *Leuconostoc mesenteroides* and *Streptococcus mutans*. In medicine, dextran is used as an antithrombotic to reduce blood viscosity and as an intravenous fluid to solubilize other factors, such as iron, or to replace lost blood in emergencies. In addition, it has a role as a lubricant in some eye drops, and in SEC matrices such as Sephadex. Dextrans are also used as starting or intermediate reagents by food, biotech, photographic and chemical manufacturers.

Size exclusion chromatography will reveal differences in the molecular size profiles of dextrans. Agilent PL aquagel-OH 40 and 60  $8\ \mu\text{m}$  columns are ideal for this purpose because they combine low exclusion limit, high pore volume and high column efficiency ( $>35,000$  plates/meter) for maximum resolution. In this case, two different PL aquagel-OH columns were connected in series to cover a molecular weight range from  $10^4$  to  $10^7$ .



**Agilent Technologies**

### Conditions

Samples: Four dextrans

Columns: 2 x PL aquagel-OH 60 8 µm,  
300 x 7.5 mm (p/n PL1149-6860)  
+ 1 x PL aquagel-OH 40 8 µm,  
300 x 7.5 mm (p/n PL1149-6840)

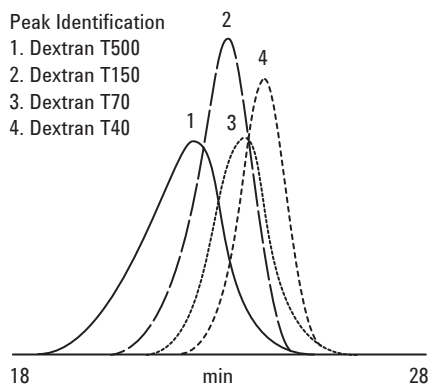
Eluent: 0.2 M NaH<sub>2</sub>PO<sub>3</sub> + 0.2 M NaCl at pH 7

Flow Rate: 1.0 mL/min

Detection: RI

## Results and Discussion

Figure 1 shows the differences in molecular weights of four commercial dextrans.



**Figure 1. Overlay chromatograms showing the differences in molecular weights of four commercial dextrans**

## Conclusion

SEC and PL aquagel-OH columns successfully resolved four samples of dextran. The 'neutral' surface and ability to operate across a wide range of eluent conditions equip PL aquagel-OH for the high performance analysis of analytes with neutral, ionic and hydrophobic moieties, singly or combined.

[www.agilent.com/chem](http://www.agilent.com/chem)

This information is subject to change without notice.

© Agilent Technologies, Inc. 2010

Published in UK, September 2, 2010

SI-01630



**Agilent Technologies**