

## Measurement of Molecular Mass of Lignin by GPC with Aqueous Solution

Lignin is a macromolecular phenolic compound, forming a major component in wood along with cellulose and hemicellulose and is abundant in nature. Recently, as part of the interest in the use of biomass materials, lignin has been studied for use as a raw material in adhesives, synthetic resins, and organic solvents (dimethylsulfoxide, dimethylsulfide, etc.).

A method for measuring the molecular mass of lignin by SEC using a DMSO/DMF mixed solvent with an added acid has been reported. Here, molecular mass was measured in an aqueous SEC system under simple eluent conditions. An alkaline solution with added acetonitrile was used as the eluent to optimize conditions from the perspective of lignin solubility and interactions with the column packing material.

For the provision of samples, we would like to express our sincere gratitude to Dr. Jeung-yil Park fellow at the National Agriculture and Food Research Organization (NARO), National Food Research Institute, Carbohydrate Laboratory.

Figure 1. Chromatogram of Lignin

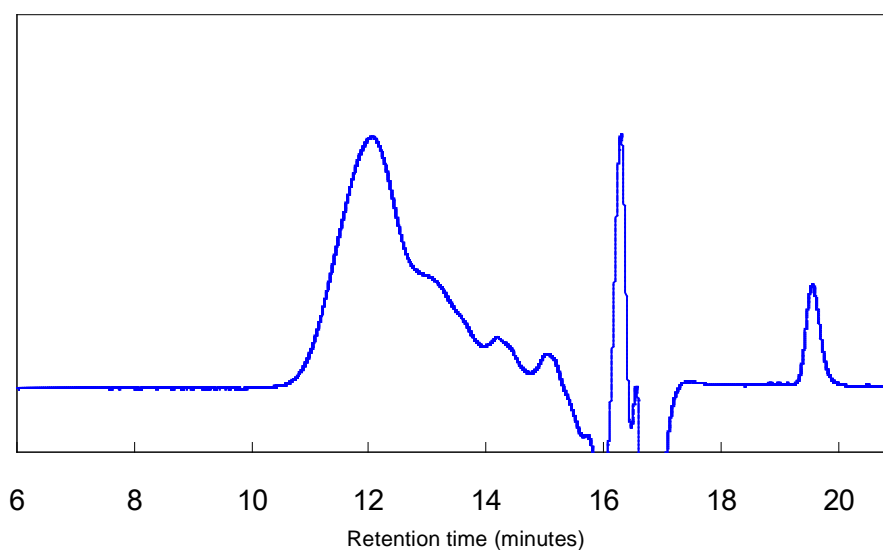


Table1. Analytical conditions

Column:	TSKgel G3000PW <sub>XL</sub> + G2500PW <sub>XL</sub> , 7.8mm ID x 30cm
Mobile phase:	30mmol/L Na <sub>2</sub> CO <sub>3</sub> + 10mmol/L NaHCO <sub>3</sub> , pH 10.7/ CH <sub>3</sub> CN = 60/40
Flow rate:	1.0mL/min
Temperature:	40°C
Injection vol.:	100μL
Detection:	RI



TOSOH

---

## **TOSOH BIOSCIENCE**

TOSOH Bioscience LLC  
3604 Horizon Drive, Suite 100  
King of Prussia, PA 19406  
Orders & Service: (800) 366-4875  
Fax: (610) 272-3028  
[www.separations.us.tosohbioscience.com](http://www.separations.us.tosohbioscience.com)  
email: [info.tbl@tosoh.com](mailto:info.tbl@tosoh.com)