

COMING CLOSER TO A CORRECT MOLAR MASS OF TECHNICAL LIGNINS

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Technical lignins – waste products obtained from wood pulping or biorefinery processes - have required lengthy analysis procedures and different eluents for molar mass analysis by gel permeation chromatography (GPC). Recently, we have demonstrated a new way for a fast analysis of lignin molar mass with using UPLC method, which enables to decrease the time of analysis up to ten times [1]. In this work, we have evaluated multi angle laser light scattering (MALLS) at different laser wavelengths to approach absolute molar mass determination of lignins in size exclusion chromatography (SEC) – a method which so far is strongly limited by fluorescence problems. The refractive index increment (dn/dc) is one of the most important parameters required for a light scattering. Therefore, dn/dc determination of different lignins was a part of the present work. The paper will discuss the specific needs in SEC-MALLS of lignin and provide an approach to solve some of these problems by modern and also improved classical SEC methods.

[1] I. Sulaeva, G. Zinovyev, I. Sumerskii, T. Rosenau, A. Potthast. Fast track to molar-mass distribution of technical lignins. ChemSusChem 10 (2017) 629-635.