

SEC Analysis of Poly 2-Vinyl Pyridine

Application Note

Authors

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Introduction

Poly 2-vinyl pyridines are non-toxic, water soluble, cationic polymers with the ability to chelate heavy metals. This makes them valuable in removing metals found in poisoning and contaminated environments. They also have useful electrical conductivity properties when reacted with halogens such as iodine. This property is made use of in heart pacemakers. A sample of poly 2-vinyl pyridine was analyzed by aqueous SEC using Agilent PL aquagel-OH columns. These columns combine high pore volume and high column efficiency (>35,000 plates/meter) for maximum resolution. The pH of the salt buffer eluent was reduced to 3 in order to minimize ionic interaction between the sample and column. In order to dissolve the sample, the solvent pH had to be reduced further to pH 1.5 but the polymer remained in solution at pH 3 for analysis.





Conditions

Sample: Poly 2-vinyl pyridine Columns: 2 x PL aquagel-OH 50 8 µm, 300 x 7.5 mm (p/n PL1149-6850)

0.8 M NaNO₃ + 0.01 M NaH₂PO₄ at Eluent:

рН 3

Flow Rate: 1.0 mL/min

Detection: RI

Conclusion

SEC using PL aquagel-OH columns successfully analyzed a sample of poly 2-vinyl pyridine. Aqueous SEC not only provides molecular weight data but also provides information on the polydispersity and the shape of the molecular weight distribution. The excellent chemical and mechanical stability of these columns offer high performance with good repeatability and column lifetime.

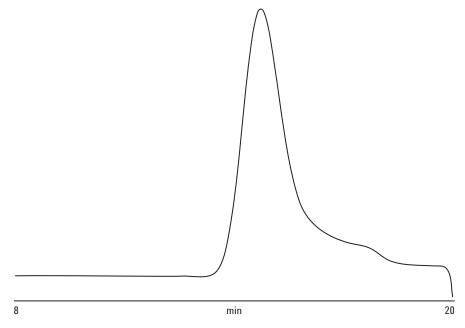


Figure 1. Raw data chromatogram of poly 2-vinyl pyridine

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