

July 05-07, 2018
Berlin, GermanyMiloš Netopilík, Arch Chem Res 2018, Volume 2
DOI: 10.21767/2572-4657-C3-008

THE ROLE OF EQUILIBRIUM IN SEPARATION OF POLYMERS BY SEC

Miloš Netopilík

Institute of Macromolecular Chemistry AS CR, Czech Republic

The equilibrium model is based on the concept of theoretical plate on which the equilibrium is formed between molecules of the analyte moving together with MP and those anchored on the surface by enthalpic attractive forces or penetrated into the pores by entropic process basically of Brownian diffusion into pores of the stationary phase (SP). However, the flow-rate, necessary to reach a good resolution, is by far lower than one would expect from that, necessary to reach a good equilibrium. Two kinetic processes, viz., tortuous and obstructed flow of eluent through and around the particles of packing and the flow profile in the mobile phase whose dispersive effect is controlled by transverse diffusion, may combine to reduce band broadening (imperfect resolution). To avoid it, the individual molecule has to sample the complete range of linear flow velocities in a random way as it moves along the column; this is achieved by transverse diffusion. This is shown on analyses of several polystyrene standards.

Biography

Miloš Netopilík has completed his PhD at the age of 30 years from Institute of Macromolecular Chemistry and postdoctoral studies from Virginia Polytechnic Institute and Technical University. Now, he works in Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic and works in the theory of separation. He has published more than 68 papers in reputed journals. His research interests are separation mechanism, SEC with multiple detection.

netopilik@imc.cas.cz