Flow through Porous Media in High Performance Liquid Chromatography

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High Performance Liquid Chromatograph utilizes flow through porous media to separate various solutes. As the composition of eluants in High Performance Liquid Chromatograph(HPLC) varies, the eluants' thermodynamic characteristics such as density, viscosity, and adsorption characteristics of solutes to the adsorbents, the separation characteristics of solutes change. The carrier fluid goes through a series of packed beds like the filter called frit, guard column and main column. As the layers of eluants of different composition flow through the packed beds of solid particles, thermodynamic properties of mixing and dispersion should also be considered. These phenomena can be analyzed by seeing the pressure profile and light absorption profile. The relation between the pressure profile and HPLC column particles, absorption curves are considered together to investigate the aggregation structure of the porous packed particle media.