

Both analytical and preparative liquid chromatography separations are often performed using mobile phases containing more than one component. When samples are dissolved in a different solvent than the mobile phase, after the injection an additional signal called the “system peak” can appear.

The presence of these peaks is explained through loss of equilibrium in the analytical or preparative column caused by competitive interactions between the separated solutes and the strong additive of the mobile phase. During the relaxation process the system peaks are being generated. It is worth noting that even if the system peaks are often misinterpreted, they offer valuable information regarding the thermodynamics and kinetics of the separation, which takes place in the chromatographic system.

However from the method development point of view system peaks should be avoided by dissolving the sample in a solvent that closely matches the mobile phase composition.



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