
FLUID-BASED TWO-DIMENSIONAL SEPARATION TECHNIQUES: A PRACTITIONER'S POINT OF VIEW

Isabelle François (1), Alberto dos Santos-Pereira (2) and Pat Sandra (2)

(1) Exxon Mobil Chemicals Europe, Hermeslaan 2, B-1831 Machelen, Belgium,
isabelle.francois@exxonmobil.com

(2) Research Institute for Chromatography, President Kennedypark 26, B-8500 Kortrijk,
Belgium, pat.sandra@richrom.com

Initiated by the insufficient resolution of one-dimensional liquid chromatography (1D-LC) for the separation of complex samples, multidimensional techniques have continuously gained interest in the scientific community during the last two decades. The main benefit of the two-dimensional (2D) LC approach is the increased peak capacity, that is achieved by combining highly orthogonal separation dimensions and by sufficiently fractionating the first dimension peaks in order to maximally maintain the first dimension resolution. Next to the apparent benefits of comprehensive LC in which the two dimensions are coupled on-line, the technique is characterized by a number of disadvantages including increased system complexity and method development and the incompatibility of certain orthogonal dimensions.

During this lecture, the pros and cons will be discussed from a practitioner's point of view and attention will be paid to both comprehensive and off-line 2D-LC.