

# Sample preparation or 2D-LC: To which extend can 2D-LC replace sample preparation

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For many years, 2D-LC has been a technique for high-end users. Although it proved big advantages and enormous versatility already in the early beginnings, 2D-LC did not overcome the status of a niche technology. The broad interest started to grow especially after the first commercially available systems were on the market.

Besides the increasing number of different applications, it also became clear, that many users were already combining two different stationary phases, the first for sample extraction or sample cleanup, the second for the analytical separation. This combination is often mistakenly described as "2D-LC", although the sample preparation not deliver an accurate chromatographic separation in the first step and separates the analytes only from parts of the matrix. For sure, the question comes up, if a decent separation can help to simplify or enhance a complete analytical workflow by using a real chromatographic separation in the first dimension.

In this presentation the possibilities will be discussed and examples will illustrate, how a real two dimensional chromatography can replace extraction steps and how this can influence sensitivity of the whole analysis.

## Acknowledgements and/or References

[1] Gerd Vanhoenacker, Mieke Steenbeke, Frank David, Pat Sandra, and Koen Sandra

"Analysis of Polycyclic Aromatic Hydrocarbons in Petroleum Vacuum Residues by Multiple Heart-Cutting LC Using the Agilent 1290 Infinity 2D-LC Solution"

Agilent Application Note 5991-6549EN

[2] Gregory Staples

"Analysis of Monoclonal Antibodies Using Multiple Heart-cutting Hydrophobic Interaction/Reversed Phase 2D-LC/MS"

Agilent Application Note 5991-6376EN