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DUAL-CHANNEL GC×GC-FID FOR ROUTINE TPH ANALYSES

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The determination of aliphatic/aromatic compounds when performing Total Petroleum Hydrocarbon (TPH) analysis is typically a lengthy process – with solid phase extraction (SPE) to separate aliphatics into hexane and aromatics into dichloromethane, prior to two separate GC analyses per sample. The enhanced separation of comprehensive two-dimensional chromatography (GC×GC) negates the requirement for laborious sample fractionation, saving a significant amount of extraction and processing time, while also reducing consumable costs. Instead of two separate analyses, the traditional 'boiling point' separation is maintained in the first dimension while the aliphatic and aromatic compounds are separated in the second dimension. Fast and confident group-type quantitation is then performed, using simple data processing tools. Stencils are applied to group peaks into chemical classes (e.g. C8-C10, C10-C14 etc) based on their elution region. The use of flow rather than thermal modulation, ensures excellent retention time repeatability across large sample batches, enabling automated data processing to be performed with minimal operator intervention. Furthermore, here we demonstrate a dual-channel configuration, doubling the sample throughput per instrument - increasing productivity, reducing bench space and lowering installation costs, all while meeting the criteria set out in standard methods (e.g. TPH Criteria Working Group and Massachusetts Department of Environmental Protection).

Biography

Ruslan Dedishov is Technical Sales Professional at Markes International GmbH. During the last 2 years he was focused on supporting and leading projects in the field of trace analysis using GCMS technology. Before this role, Dedishov was developing and coordinating OEM business division at Knauer GmbH. Dedishov holds a degree in food chemistry from Julius Maximilians University of Wuerzburg, Germany.

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