

Development of an LC-GCxGC-TOFMS/FID Workflow to Determine the Presence of MOSH/MOAH and POSH/PAO Contaminants in Food Products

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Abstract

As food production becomes ever more intensive and processes become more complex, the risk of contamination from production methods becomes ever greater. The days of only being concerned about pesticides are long gone. Allergens, contaminants, and adulterants all need to be identified and quantified. Of specific interest are Mineral Oil Saturated Hydrocarbons (MOSH) and Mineral Oil Aromatic Hydrocarbons (MOAH), which point to contamination from the oils and greases used in machinery. At the same time, Polyolefinic Oligomeric Saturated Hydrocarbons (POH) and Poly Alpha Olefins (PAO) represent contamination from plastic polymers, and synthetic lubricants and adhesives are also becoming more critical.

Whereas LC-GC-FID techniques have been used in the past for the MOSH/MOAH analysis, this technique does not provide enough specificity to assist in the exact source of contamination and nature of the analytes present. Shifting to LC-GCxGC-TOFMS/FID provides the separation and identification required to characterize each sample better and determine the contamination source.

This poster covers the instrumentation used and provides feedback on some of the most complex analyses possible in the food industry while harnessing the power of an FID for quantification and TOFMS for identification.