

Gain Confidence in Your Results:

Effective Application of Thermo Scientific Technologies for Safer Food

Our Message is simple – we can help you to gain **confidence in your results!**

Join our free seminar at RAFA 2013 on **Wednesday 6th November** from **14:30** to **15:30**

We will present recent **developments** and **advances** in analytical chemistry of emerging food contaminants and residues. Presentations will cover novel applications of gas chromatography coupled to tandem mass spectrometry (**GC-MS**) for determination and confirmation of **persistent pollutants** like polychlorinated dioxins and dibenzofurans (**PCDD/PCDF**) in foods. The potential of novel high resolution and accurate mass spectrometry systems for screening, quantitation and confirmation of growth promoters in urine will be described. Finally, an advanced stable isotope ratio mass spectrometry (**SIRMS**) approach for assessment of authenticity and origin of foods will be presented.

Topics will be presented by **guest speakers** from leading scientific institutes across Europe and application specialists of Thermo Scientific.

Guest speakers:

- **Dr. Martin Rose, Food and Environmental Research Agency, York, UK**
Legacy and emerging POPs in food; analysis using GC-MS/MS

Measurement of dioxins in foods is probably the most challenging routine analysis carried out in order to ensure compliance with regulations. This has until now been undertaken by highly specialized laboratories equipped with high resolution mass spectrometers. These are sector instruments and require highly skilled operators in addition to a variety of services and facilities such as cooling water, 3 phase power supply etc.

There are a variety of new and emerging contaminants and legacy contaminants that also pose potential dioxin-like health risks – brominated and mixed halogenated dioxins fall into the first of these categories and PCNs fall into the second.

Recent advances in MSMS technology mean that this technique is a viable alternative to HRMS for regulatory monitoring and also for investigating non-regulated or near-regulated contaminants. This presentation will cover experiences of using the Thermo TSQ Quantum XLS Ultra as a tool for analysis of foods for a range of environmental contaminants.'

- **Dr. Marco Blokland, RIKILT, Wageningen, Netherlands**
Q-Exactive a versatile Mass-Spectrometer to detect growth promoters in urine?

In Europe hormones are illegally used to enhance growth in cattle. Detection of abuse of growth promoters usually takes place through targeted MS analysis on a limited set of substances. Attempts to detect growth promoters in urine, using full-scan technologies, at residue levels in cattle urine has failed so far due to the low concentration of these compounds present in samples of urine. Results of the exploration of the Q-Exactive as a mass-spectrometer to detect growth promoters at residue levels in urine are presented.

- **Dr. Dirk Krumwiede, Thermo Fisher Scientific, Bremen, Germany**
Latest Developments in Isotope Ratio Mass Spectrometry: Authenticity control, Fraud and Forensics in Food

Isotope ratio mass spectrometry (IRMS) is a key technology for authenticity control and food testing. In a first step prepared food samples are applied to the mass spectrometer using a variety of different sample inlet systems including elemental analyzer, liquid and gas chromatography. The introduced sample is completely converted into simple gases (e.g. CO₂, H₂) by combustion or high temperature conversion devices prior to the final accurate determination of related isotope ratios (¹³C/¹²C, ²H/¹H, ¹⁸O/¹⁶O, ¹⁵N/¹⁴N) in the sector field mass spectrometer. These highly precise measurements allow the detection of non-authentic food products or food fraud, like e.g. food supply chain adulteration.

This presentation is aiming to give a brief introduction into IRMS, which is followed by some specific application examples for IRMS in food analysis. Finally some latest developments in the field of GC-IRMS will be presented including hyphenation and column connection technology.