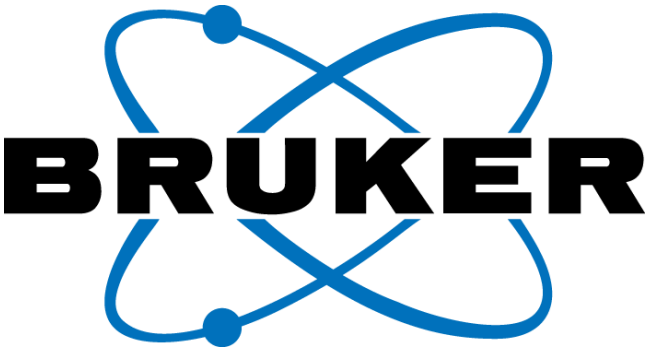
September 6, 2022 (12:15–13:00)



VENDOR SEMINAR:

New Developments in Fast Food Testing

DART and MALDI for rapid direct analysis

Dr. Carsten Baessmann, Bruker Daltonics GmbH & Co. KG, Bremen, Germany

As the consumer community continues moving towards understanding more about food quality and its source, plus greater awareness by analysts in developing 'greener' methods, rapid direct analysis of samples is gaining importance in meeting these criteria.

To achieve these goals, 'chromatography free' methods have been developed using DART technology from IonSense, MALDI mass spectrometry and real-time CI TOF from TOFWERK. All methods offer much shorter analytical times meaning less consumable costs and higher throughput of samples.

The benefits of all the above technologies will be explained using examples of DART coupled to triple quadrupoles, high resolution MS and ion mobility MS systems, MALDI-TOF and chemical ionization MS systems. The analyses shown will include wine analysis including quantitation of antioxidants, pesticide analysis, authenticity of olive oil, feta cheese, yoghurt and beef plus flavour analysis.

Real-time CI-TOF and ecTOF for food and flavour analysis

Marleen Vetter, Ph.D., TOFWERK, Thun, Switzerland

TOFWERK, a strategic partner of Bruker, offers time-of-flight (TOF) mass spectrometers for applications that demand exceptional speed and sensitivity, delivering innovative solutions for chemical analysis. After a quick company overview of TOFWERK, the seminar highlights two product lines for food analysis applications: The Vocus CI-TOF and the ecTOF.

The Vocus is a real-time chemical ionization mass spectrometer (CI-TOF) that directly samples, quantifies, and characterizes volatile and semi-volatile organic and inorganic compounds in complex mixtures in real time, without the need of chromatography. It delivers sub-ppt limits of detection for a diverse range of compound classes. The rugged, compact design offers a field deployable system for even the most difficult environments. The Vocus offers robust solutions for food and flavor analysis, including the Vocus Cork analyzer which demonstrates a fast, real-time application in monitoring and quality control applications.

Furthermore, the newly developed ecTOF is presented. The uniqueness of this mass spectrometer is the parallel operation of an electron ionization (EI) and a chemical ionization (CI) source. By directly coupling a single gas chromatograph (GC) to both ionization sources, target and suspect screening analysis is improved as well as effective non-target analysis rendered possible. In addition, the ecTOF can be run in real time and GC sampling in parallel, bridging the gap between real time and conventional GC applications. Example applications for the food and fragrance market are discussed. By using the concurrently generated structural as well as accurate mass molecular ion information, the identification of compounds of interest is improved, highlighting the potential for the ecTOF during product development and quality control, as well as a tool for authenticity concerns.