November 4, 2015 (13:30–14:30)

VENDOR SEMINAR:

From Sample Extraction to Data Analysis of Complex Samples with Smart Solutions

Odors from food packaging - an analytical challenge?

Erich Leitner, Technical University Graz, Graz, Austria

The smell of a product (food or non-food) is one of the most influencing parameters for the acceptance or the rejection of products by consumers. In addition the quality of food packaging material have to meet the general requirements stated in the Framework Regulation (EC) No. 1935/2004 where it is clearly defined that "…*they do not transfer their constituents into foodstuffs in quantities which could endanger human health or bring about an unacceptable change in the composition of the foodstuffs or deterioration in the organoleptic characteristics thereof"*. The olfactory sensation is processed in the limbic system, which is highly linked to emotions and therefore highly subjective. A more objective approach is the analytical determination of odor active substances by gas chromatographic techniques; because only volatile substances in a molecular weight range of up to 300-400 Dalton can show odor activity. Nevertheless, for setting up analytical methods for odor active substances the methods must be able to reach the concentration ranges of the sensory thresholds. Several examples for the identification and quantification of different packaging materials will demonstrate the use of one and two dimensional applications of GC-MS and GC-MS/MS.

Innovative strategies for Dioxins/PCBs extraction and purification

Philippe Marchand, LABERCA, Nantes, France

LABERCA, French Reference Laboratory for Dioxins and PCBs, in collaboration with BUCHI, analyzed different samples from international PTs in dioxins and PCBs. Samples were extracted using the SpeedExtractor, purified on a new automatic system (MIURA GX-300) and analyzed by GC-HRMS (Jeol). This new technique increases productivity by processing up to 6 samples in parallel and provides satisfactory results in terms of repeatability, reproducibility and accuracy.

Lipidomic analysis by using one- and multidimensional chromatography coupled to mass spectrometry

Francesco Cacciola / Luigi Mondello, University of Messina, Messina, Italy

Lipidomics is a branch of metabolomics and aims to study all the lipids within a living system or in complex biological samples. The abundance and differences of individual lipid molecular species may be indicative as a clinical tool for risk assessment and disease monitoring. In this contribution, a practical workflow for lipid profiling of biological and food samples by one- and multidimensional chromatography coupled to mass spectrometry (MS) is illustrated. In particular, the analysis of intact lipid constituents was carried out by reversed-phase (RP) liquid chromatography and silver ion chromatography (for a class-type separation) coupled to RP-LC (for lipid species separation).