

Title
How far are we in the chase after the lowest detectable level for Dioxins?"
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Abstract
<p>The chase for sensitive dioxin measurement methods has been going on for the last few decades. It opened when chickens were dying from Chick edema disease in the US in 1957. Today, one can surely say that we have reached a state-of-the-art in that field. Currently GC-MS methods can routinely work at the low picogram-high femtogram level, based on the use of high end MS sector instruments, but also the last generation of triple quadrupole analyzers. The latter being recently accepted as a tool for confirmatory measurement in food and feed under the maximum level (ML)-based EU legislation.</p> <p>Once we consider human biomonitoring, the situation is somewhat different as there are no ML set for humans. The challenge there is to be able to measure the lowest possible quantity of target analytes, in order for the toxicologist working downstream of the analytical chemist to be able to properly analyze the situation in terms of global toxicity. Large volume injections (LVI), cryogenic compression (CZC), better ion production and transfer, longer ion accumulation times, ... are the possible ways to enhance signals and improve instrument limits of quantification (iLOQs). Proper monitoring of blank levels is also of prime importance when considering method LOQs (mLOQs) as laboratory background levels are quite independent of sample sizes when chasing at sub femtogram levels and can easily exceed the levels to be measured in samples.</p> <p>This presentation will focus on recent advances in the field of measurement at ultra-trace levels of dioxins and related compounds in the frame work of human biomonitoring.</p>
Author's Biography
<p>Professor Jean-François (Jef) Focant is the Head of the Chemistry Department of the University of Liège in Belgium. He is leading the organic and Biological Analytical Chemistry group of the mass spectrometry laboratory. Main research interests are coupling of sample preparation procedures, development of new chromatography strategies in separation science, hyphenation to various types of mass spectrometric detectors through multidimensional systems, and implementation of emerging strategies under QA/QC requirements for human biomonitoring and food control. Professor Focant has been active in the field of dioxin analyses for the last 15 years. He chaired the 31st International Symposium on Halogenated Persistent Organic Pollutants and POPs (DIOXIN2011) in Brussels in 2011. Known as a dioxin expert, he is also active in other areas of Separation Science such as characterization of complex mixtures of volatile organic compounds (VOCs) for medical and forensic applications. Recent investigations include characterization of cadaveric decomposition odors, screening for biomarkers of cancer by breath analysis, and plant combustion studies. Working on the hyphenation of state-of-the-art analytical techniques to solve practical analytical issues is what he enjoys to do.</p>



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