

CON-THE-040

CONFIRMATORY METHODS GC-HRMS for the measurement of POPs

• Context

The Persistent Organic Pollutants regulation in foodstuff is based on maximal contamination limits. In this way, the sample preparation needs to lead to an efficient quantitative measurement giving a confident concentration in all the matrices (more or less complex) considered and requiring a minimal time of preparation.

• General objective(s)

The main objective of this lecture is to provide theoretical considerations about the analysis of POPs in foodstuff, including agrochemical pesticides, dioxin-like compounds and other emerging POP-like substances. The Toxic Equivalent Quotient concept developed for the dioxin-like compounds will be introduced. Then, starting from the necessity to take into account simultaneously the physicochemical properties of the target compounds and the complexity of the matrix of interest, a description of the sample treatment steps and mass spectrometer measurements used will be provided.

• Main items

POPs / Dioxins / Sample treatment / GC-HRMS

• Pedagogical objectives

- ✓ To point out state of the art in the field of sample preparation for dioxin analysis
- ✓ To explain the TEQ concept
- ✓ To introduce the isotopic dilution method

• Pedagogical tools

- ✓ Slide show
- ✓ Rapid exercise concerning isotopic clusters from halogenated compounds

• Duration

- ✓ 1 hour

• Pre-requisite

- ✓ Knowledge of the chemistry of contaminants of interest (REG-THE-010)
- ✓ Theoretical lectures on sample preparation (SAM-THE-010, SAM-THE-020, SAM-THE-030)
- ✓ Theoretical lectures on confirmatory methods (CON-THE-010, CON-THE-020, CON-THE-030)