

**Focused-microwave assisted extractions for speciation of Hg, Sn, Cr and As from environmental samples.**

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Sample preparation is the key point in speciation analysis in order to preserve the species integrity during extraction. The need of fast and reliable procedures can be attended with the use of microwaves as heating source to speed up the process. Speciation analysis performed by focused microwave assisted extractions was developed during the past years yielding good performance and achieving short extraction times. Nowadays this technology has experimented a quantitative rise in terms of quality, producing products with better control in the parameters controlling the extraction (microwave power, temperature and pressure).

In this work we present different methodologies to perform the analysis of a variety of relevant species for the environment: Monomethylmercury, Tributyltin, Dibutyltin, Monobutyltin, Arsenobetaine, Chromium (VI)...

After species extraction, two main approaches are presented in this work. Extraction, alkylation and liquid-liquid extraction in case of Hg and Sn where volatile species can be formed and direct speciation of the extract for Cr and As. Where it was possible species specific isotope dilution analysis was performed as primary method for the analyte quantification. In all the cases certified reference materials were analysed to validate the method proposed.