

Speciation analysis – A tool for identification and quantification of metal compounds

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The analysis of the specific form of an element (chemical species) is called speciation analysis. In recent years the analysis of species has become a main issue in environmental science. The chemical species has not only an influence on the environmental behaviour of an element, but also on the (bio-)leaching procedure in a technical scale. A usual approach of speciation analysis is to couple a chromatographic separation technique (e.g. HPLC or GC) to an element specific, sensitive detector (e.g. ICP-MS). The redox state of an element (e.g. Sb(III)/Sb(V)) or a specific compound (methylated species or complexes) can be analysed in a liquid sample in this way.

The challenges and possibilities of speciation analysis are demonstrated with some examples (antimony, germanium, and arsenic species) of our recent research.