

Risks and new possibilities in sample preparation for further halogens determination in organic matrices

Érico Flores

Universidade Federal de Santa Maria (UFSM), Santa Maria, Brazil

ericommf@gmail.com

Currently, with a few exceptions most of equipment used in atomic spectrometry requires a previous step for sample preparation, generally a complete digestion of sample. However, conventional methods for sample digestion and further element determination by chromatography and/or atomic spectrometry involve the use of a relatively high volume of concentrated reagents and a relatively long time for digestion/extraction. The digestion efficiency of some systems is limited for many matrices, especially for further halogens determination. In this sense, even using methods based on microwave-assisted closed vessels, some drawbacks can occur and incompleteness of digestion/extraction has been frequently reported. Nowadays, there is a trend for the development of methods requiring lower reagent consumption, less analytical steps and lower waste generation combined with high efficiency of digestion. In addition, it is important obtaining digests that are suitable for determination techniques avoiding excessive dilution or higher blank levels. On this aspect, the main trends for preparation of samples having different composition will be presented. Use of diluted solutions in oxygen pressurized systems, feasibility of combustion systems, and other main aspects of sample preparation for the determination of metals and halogens will be discussed. Recent applications will be presented showing the advantages of the use of diluted reagents microwave-induced combustion, pirohydrolysis, etc., for such techniques as ion chromatography, ICP-MS and ICP-OES.