

Multielemental analysis by ICP-OES

Determination of total and extractable contents of elements in solutions of environmental samples and materials.



Contact information

Address: Laboratorio Milagros Bonilla de la E.T.S.I. Caminos, Canales y Puertos-Edificio Retiro. C/ Alfonso XII, nº 3, 28014 Madrid

Phone number: 910674666

Website: upm.es

Email: marian.quijano@upm.es

Technological Offers type

Technological scientific services

Research and innovation areas

- Agriculture, Forestry, Natural Resources, Land Use and Blue Growth
- Industry, Materials and Circular Economy

ODS



Available from: 2023

Where?

Materials and Environmental Technology

Infrastructures

ICP-OES 720 AGILENT Spectrometer

Keywords: | algae | ashes | ICP-OES | metals | soils | terrestrial plants | waters

Description of Services Provided

Determinations of metallic and non-metallic elements are carried out in solutions of environmental samples and materials.

Sample pretreatment: Filtering of liquid samples; acid digestion or extraction for solid samples (for the determination of total or extractable contents).

The technique allows the simultaneous determination of most of the elements for the Periodic System, with low detection limits (see table) and high precision (%RSD < 5%).

Possibility of multi-element quantitative or semi-quantitative analysis.

A previous experimental study is carried out to guarantee the quality of the analysis, which includes:

- Semiquantitative analysis, including various wavelengths for the elements of interest to know the order of concentration and the emission lines that may be affected by spectral interferences.
- Monitoring of analysis standards or own methods validated through their application to certified reference materials (CRMs) with similar nature to the samples.
- Use of internal standards (generally yttrium or rhodium) in the quantitative analysis to control physical interferences.

The results are given in a report that includes all the information on the sample treatment and analysis, and statistical study of the results.

Market demands

People or companies managing the Environment.

Research Groups

Field of application

Environment, Materials

Differential Advantage

Possibility of quantitative and semi-quantitative multi-elemental and simultaneous analysis, with a high dynamic range of concentration (from trace levels to major elements).

Wide experience in the development of analytical methods.

Examples of previous references

- Determination of S in environmental samples: Research Group Determinacion de trazas, especiación y proteómica of Universidad Complutense de Madrid (UCM).
 - Determination of Ag, Cu, Mn, Ni, Sn, Zn y W in 0,5 M NaOH electrolyte solutions: Research Group Ingeniería de Superficies y Materiales Nanoestructurados (UCM).
-

Equipment description

Agilent 720 Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES), with axial view configuration, One Neb nebulizer, purged echelle polychromator and CCD detector. Necessary equipment for sample treatment (digestion and leaching/extraction).

How to apply

Via email
