Lab. Traceelement Studies

Dr.K.M.Ochsenkuhn, NCSR «Demokritos», Inst.Physical Chemistry, Aghia Paraskevi, 15310 Athens, Greece

e-mail : oxenki<at>central.ntua.gr
oxenkuen<at>chem.demokritos.gr
Tel.: 0030-210-650 3668

My personal research activity can be divided into two topics, environmental investigations and studies in the field of archaeometry. The environmental studies can be subdivided into the analysis and control of inorganic elements or species and into the separation or the recycling of inorganic compounds, which are of industrial interest.

Referring to the analysis and controlB of inorganic elements and species, for some years trace-elements were analyzed in airborne particulated matter, collected by using high volume samplers. The instrumental neutron activation analysis (INAA) showed to be up to now one of the best analytical methods for that purpose. A special study was performed about the uranium in the atmospheric environment. In the aquatic environment research was carried out on the topic of man-made toxic tin-species, its separation and determination by electrochemical methods. Momentary investigations were carried out on the possibility of the determinationB of trace-elements in

fractions of airborne particulate matter (PM10/PM2.5-studies). The methods of choice in that case are INAA and anodic stripping voltammetry (ASV).

For the case of the separation or the recycling of inorganic compounds, research is going on for the fate ofB different elements, which are of industrial and economical interest, in different products originated from bauxitic raw material. Of special interest is momentary the separationB of rare earth elements and scandium from those materials. As normally raw materials, containing this group of elements,B are also enriched in U and ThB and produce during the separation processes wast of higher radioactivity, which contaminate the environment, bauxite as well as its follow-up products are therefore assumed as raw materials of the future for those elements.

In the field of archaeometryB the longtime influence of the environment on the composition of archaeological subjects is studied. In the case of ceramic shards from the Cave of Dirou a time dependent change in the composition of some elements of the ceramics could be observed , which allowed a rough dating of these ceramics. For other cases e.g. prehistoric bones or surface found ceramics from Africa, analogous investigation are going on.