

Two-Stage Atomizer for Electrothermal Atomic Absorption Spectrometry: Dynamics of the Spatial Temperature Distribution

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Abstract

A two-stage atomizer for atomic absorption spectrometry is proposed. Its distinctive feature is the introduction of an extra stage of the fractional condensation of analyte atoms and the carrying out of the analytical cycle by a vaporization-condensation-atomization scheme. A special computer-driven power supply unit allows the heating of the upper and lower parts of the graphite furnace to be controlled independently. The dynamics of the temperature of the inner surface of the furnace for various temperature programs is studied. Using aqueous solutions of lead as an example, it is shown that one can control the processes of condensation-revaporization of elements to be determined proceeding in the atomizer volume.

<http://dx.doi.org/10.1023/A:1023266219197>
