

Optics and Spectroscopy (English translation of Optika i Spektroskopiya) 2008 vol.105 N5, pages 680-685

Dynamics of fractional condensation of a substance on a probe for spectral analysis

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Abstract

The fractional separation of trace metals on a cold tungsten probe from salt matrix vapor, which interferes with the spectral analysis, is studied. The spatial structure of the vapor flows of sodium chloride, potassium sulfate, and indium atoms is visualized at characteristic wavelengths as they interact with the probe. The vapor flow rate and the probe orientation were varied. It is found that the smoke of the matrix does not prevent the deposition of the metal on the probe because of spatial separation of these fractions and that the detrimental effect of thermal gas expansion and other factors is eliminated. The sensitivity of the atomic absorption analysis of indium impurities in these salts is increased by an order of magnitude. © 2008 Pleiades Publishing, Ltd.

<http://dx.doi.org/10.1134/S0030400X08110064>
