

Determination of Trace Metals in Water Samples by Flame Atomic Absorption Spectrometry After Co-Precipitation with $\text{In}(\text{OH})_3$

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The applicability of indium(III) hydroxide coprecipitation method for the separation and preconcentration of some heavy metals, such as Cd(II), Co(II), Cr(III), Cu(II) and Pb(II) in water samples for their determination by flame atomic absorption spectrometry (FAAS) has been studied. Experimental conditions influencing the recovery of the investigated metals, such as the amount of carrier, sample volume, pH of the synthetic model solution (artificial sea water), and matrix composition parameters, were optimized. Relative standard deviation (RSD) was in the range of 0.75–4.2% for artificial sea water samples, at the concentration level from 0.5 to 5 mg L⁻¹. Detection limits (DL) ranged from 0.60 to 8.6 µg L⁻¹. The recoveries of the investigated elements in spiked wastewater and river water samples equalled to 94.0–103.5%, and in the standard reference material, NIST SRM 2711 Montana Soil II ranged from 82.4 and 107%. These results were regarded as satisfactory. The proposed method has been successfully applied to the determination of heavy metals in seawater, wastewater and springwater samples.