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The Micellar Extraction Preconcentration of Pb(II) with Sulfarsazen into the Phase of non-Ionic Surfactant Triton X-100

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The regularities of micellar extraction of Pb(II) with sulfarsazene in the Triton X-100 phase at cloud point temperature were investigated. The optimal conditions for micellar-extraction of lead in the form of the complex with sulfarsazene and cetylpyridinium chloride in the phase of a nonionic surfactant Triton X-100 were established. The influence of the length of the hydrocarbon radical of cationic surfactants on the extraction rate of lead and the manifestation of the effect of «hydrophobic conformity» at the distribution of the three-component complex Pb-sulfarsazene-cetylpyridinium chloride in the micellar-extraction system were demonstrated. Formation of the complex compound Pb : sulfarsazene : cetylpyridinium chloride of 1:1:1 was determined with Bent and French method. Based on the obtained data, the method of electrothermal atomic absorption determination of lead with previous micellar-extraction was developed. Determination of Pb was performed in solutions for infusion. Taking into account the micellar-extraction of Pb, the lower detection limit of lead by the developed method is 0.05 μg/l.

Keywords: micellar extraction, lead, sulfarsazene, Triton X-100, cetylpyridinium chloride, ETAAS