

عنوان مقاله:

Ultra-trace Determination of Palladium(II) by Spectrophotometric Flow Injection Analysis

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خلاصه مقاله:

Nowadays, palladium compounds due to their especial characteristics used in different industries, mainly in electrical power sources and chemical productions as a catalyst. Therefore, Pd concentration is increasing in our around that can be contaminant our environment due its toxic effects. In this work, a simple, selective and rapid flow injection method of analysis (FIA) has been developed for ultra-trace determination of palladium. The method is based on catalytic effect of palladium on the oxidation of naphthol green B by periodate. Naphthol green B undergoes an oxidation reaction with metaperiodate in acidic medium to form a colorless product at very slow rate. It was found that this reaction can be sharply done at the present of trace amount of Pd(II). The reaction was monitored spectrophotometrically by measuring the difference between absorbance of naphthol green B of solutions with and without Pd(II), at the $\lambda_{max} = 721$ nm. The reagents and manifold variables, which have influences on the sensitivity, were investigated and the optimum conditions were established. At these conditions, the influences of some important species on the determination of palladium by flow system were examined and most of them do not have any interference effect on its flow injection determination. It is obvious that under the optimized conditions absorbance signal was linearly depended on palladium concentrations in the ranges of 2.0–90.0 ng/mL with a detection limit of 0.9 ng/mL (S/N= 3) and a sample rate of 35±5 samples/h.

کلمات کلیدی:

Palladium(II), Flow injection analysis, Spectrophotometry, Naphthol green B

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