

Full Papers

多臂碳纳米管/Nafion复合材料修饰玻碳电极测定痕量的铅离子

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摘要 本文制备了多壁碳纳米管

(MWNT)/Nafion复合物修饰电极。用示差脉冲阳极溶出伏安法测定痕量铅离子的浓度。该方法降低了富集电位, 避免了汞的污染, 灵敏度高, 重现性好。在 5.0×10^{-9} ~

2.0×10^{-8}

mol/L 及 2.5×10^{-8} ~

5.0×10^{-6}

mol/L 范围内呈良好的线性关系。

关键词 [复合材料](#); [铅](#); [电化学](#); [示差脉冲](#)

分类号

Lead Determination on MWNT/Nafion Composite Modified Glassy Carbon Electrodes

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Abstract A composite material of nitric acid oxidized multiwalled carbon nanotube (MWNT) and Nafion was prepared. Such composite was modified on a glassy carbon electrode to determine trace of lead by differential pulsed voltammetry. In pH=6.47 NaNO₃ solution, Pb²⁺ ions were accumulated on the modified electrode at -0.4 V. Compared with a bare and a Nafion film coated electrode, the composite coated GC electrode can reduce the accumulating potential and eliminate the toxic character of mercury. The calibration plots were linear at low concentration of 5.0×10^{-9} — 2.0×10^{-8} mol/L and high concentration of 2.5×10^{-8} — 5.0×10^{-6} mol/L. The performances characteristics indicate that the electrode can be used to determine trace Pb²⁺ ions

Key words [composite](#) [lead](#) [electrochemistry](#) [differential pulsed voltammetry](#)

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