

A Sensitive Hydrazine Electrochemical Sensor Based on Ag-Ni Alloy/Reduced Graphene Oxide Composite

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A sensitive hydrazine sensor based on Ag-Ni/reduced graphene oxide (rGO) has been prepared via an electrodeposition method. The Ag-Ni/rGO composite was characterized by scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy analysis (EDS) and X-ray diffraction (XRD). The Ag-Ni/rGO composite had good electrocatalytic activity for hydrazine oxidation. The electrochemical behaviour of Ag-Ni/rGO for hydrazine oxidation was also explored. When the concentration of hydrazine changed from 1.0 μM to 1.05 mM, the oxidation peak currents linearly increased. The detection limit was 0.3 μM (S/N=3). The sensor based on Ag-Ni/rGO was also used to determine the hydrazine concentration in waste water and the results were satisfactory. The sensor based on Ag-Ni/rGO was easily fabricated and had a high stability, wide linear range, low cost and potential applications for real sample analysis.

Keywords: reduced graphene oxide, Ag-Ni alloy, hydrazine, electrodeposition, sensor

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