Facile Synthesis of Flower-like Ni(OH)$_2$/rGO Nanocomposite as Sensitive Electrochemical Sensor for Formaldehyde Detection

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Ni(OH)$_2$/rGO composite was synthesized facilly by using Ni-MOF/rGO composite as the precursor and derivatized by the solid-solid conversion in NaOH solution, which was green, simple and controllable. The morphology and structure of Ni(OH)$_2$/rGO composite was characterized by SEM and XRD. Due to the synergistic effect between flower-like Ni(OH)$_2$ and highly conductive rGO, a new kind of formaldehyde sensor with high electrocatalytic activity was prepared. The analytical performance of the formaldehyde sensor was investigated by Linear Scanning Voltammetry (LSV). The linear analysis range was 0.1 ~ 100 mM with the detection limit of 0.06 mM. In addition, the sensor is applied to the detection of formaldehyde in simulated water samples, and the recovery is between 97.9% and 110.4%.

Keywords: Ni(OH)$_2$, Graphene, Electrocatalysis, Formaldehyde, sensor

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