

A Vehicle Exhaust NO_x Electrochemical Sensor Based on Au-Yttria Stabilized Zirconia Nanocomposite

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Mixed potential sensor which is built on Yttria Stabilized Zirconia (YSZ) with a plain planar structure Au/YSZ/Pt has actual benefit among different kinds of NO_x sensors. To further sensing abilities, Au composites electrodes were taken a research on. The fact that adding YSZ into the Au electrode reduced in air the polarization resistance has been demonstrated by electrochemical impedance spectroscopy. The proposed porous Au/YSZ composite electrodes in a YSZ-based sensor have more positive effect than pure gold electrode based on the excellent performance. The proposed YSZ-based sensor could linearly detect NO₂ in the concentration between 50 to 400 ppm with a low detection limit of 20 ppm.

Keywords: NO_x electrochemical sensor; Gold, Yttria stabilized zirconia; Nanocomposite

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