

The development of SnO₂-based recoverable gas sensor promoted metal oxides for detection of sulfur dioxide

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A SnO₂-based thick film gas sensor was studied for detection of sulfur dioxide (0.1-10ppm SO₂). The SnO₂-based gas sensor was prepared by adding magnesium and vanadium oxides to SnO₂. The SnO₂-based gas sensor developed in this study showed not only good sensor response, but also complete recovery ability by thermal treatment in air. In particular, new SnO₂-based gas sensor produced by adding magnesium and vanadium oxides (5wt% MgO, 2wt% V₂O₅) showed sensor response of about 44% in the low concentration of 1ppm SO₂. Moreover, its response maintained during multiple cycles of detection and recovery properties. This result was due to promoter effect and synergistic effect between magnesium and vanadium oxides.