

## Alcohol sensing properties of nanosized thick film WO<sub>3</sub> doped with Y<sub>2</sub>O<sub>3</sub>

### ABSTRACT

In this paper the response of printed thick-film of WO<sub>3</sub> doped by Y<sub>2</sub>O<sub>3</sub> to organic solvent was studied. Different ratio of doping was prepared and changes of film resistance at different temperature in present of vaporized types of alcohol were observed. The results showed a high sensitivity of the film of 80.1%WO<sub>3</sub>-18.8%Y<sub>2</sub>O<sub>3</sub> to Toluene, Xylene, Methanol, and 2-Propanone (Acetone) at 250, 450, and 550 °C, and higher sensitivity of 94.3%WO<sub>3</sub>-4.7%Y<sub>2</sub>O<sub>3</sub> at 350 °C. Microscopic images of the samples including SEM and TEM were observed. EDX and XRD analysis onto the samples also were done.

**Keyword:** Gas sensor; Thick film; Tungsten oxide; Ytria