

Evaluation of dimension effects on a capillary-attached gas sensor

ABSTRACT

The analysis and useful gas sensing properties of a capillary-attached gas sensor (CGS) have been recently investigated. The aim of the present work was the assessment of dimension effects on the CGS sensing properties both diameterwise and lengthwise. CGS samples in different dimensions were fabricated and tested by exposure to different target gases in different concentration ranges. Dimension effects on CGS properties such as selectivity, sensitivity, rise time and input range were investigated. It was observed that the CGS with smaller diameter and longer lengths generated more selective information. However, decreasing sensitivity and increasing minimum input range were some disadvantages of smaller diameters. Longer length also made longer rise time and slower sensor. Finally, the optimum ranges for the CGS in length and diameter were suggested.

Keyword: Conductive gas sensor; Transient response; Dimension effects