

Preparation of ZnO nanodisks using hydrothermal method and sensing to reductive gases

Abstract

ZnO nanodisks exhibiting regular hexagonal structures were successfully synthesized using two surfactants via a hydrothermal method. The surfactants, namely, cetyltrimethylammonium bromide and sodium dodecyl sulfate, had vital functions in the formation of nanodisk structures. The fabricated ZnO nanodisk-based sensor was exposed to reductive gases. The performance of the developed gas sensor to formaldehyde was superior than that to ethanol. The highest sensitivity values for formaldehyde and ethanol (150 ppm) were 81.6 and 43.2, respectively, at an optimal temperature of 300 °C.

Keywords

Ethanol; Formaldehyde; Sodium sulfate; Surface active agents; Zinc oxide