

NO_x sensing properties of various SnO₂-based gas sensors

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Fine dust emission that negatively affects the human body has tended to increase every year in Korea. Thus, many researcher studied about detection of NO_x and SO_x gases which are major sources of the fine dust. The ppb level detection is one of the key points for detection of the fine dust. In this work, we investigated NO_x sensing properties of the SnO₂-based thin-film, thick-film and nanowire structure sensors. The SnO₂-based thin-film sensors were prepared by ion sputtering method and the thick-film sensors were prepared by screen printing method. The SnO₂-based nanowire structure sensors were fabricated by chemical vapor deposition method. The gas sensing properties of the SnO₂-based sensors were investigated in the 50 ppb-100 ppb NO_x gas at temperature ranges of 150°C-250°C. The SnO₂-based nanowire structure sensors showed high sensor response of approximately 9.62 and excellent recovery properties for detection of 100ppb NO_x at 150°C.