

O. I. MILOVANOVA

Sensing Properties of SnO₂ Thick Films

*Vernadskii Institute of General & Inorganic Chemistry of the Ukrainian NAS,
prospekt Palladina 32-34, 03680 Kyiv 142, Ukraine;
e-mail: mylovanovaolya@gmail.com*

For wide-gap n-type semiconductor SnO₂ crystals in the active gas environment is typical change of electroconductivity G in wide limits. This effect of gas sensitivity G value is reversible and determined by chemisorptions of gas molecules on SnO₂ crystal.

The aim of present paper is study of the influence of Pt, Pd, Mo small additives on electrophysical properties and gas sensitivity of SnO₂ thick films obtained from nanocrystalline SnO₂ powders, synthesized in nitrate melt.

Morphology, microstructure, chemical composition were defined using transmission electron microscopy, X-ray diffraction and chemical analysis. The powders are 5-10 nm SnO₂ nanocrystals with much smaller metals clusters, which are weakly agglomerated and have a cassiterite structure.

All films based on synthesized powders had stability of base response line in time and low response time τ_{res} .

It is means that diffusion of vapor of ethanol or acetone to the sites of chemisorbed oxygen as leaking here oxidation reaction by this oxygen goes sufficiently high. Renewal process of film surfaces is much long for all films.