Influence of doping materials on titanium dioxide gas sensing properties

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Possibility of employment of multioxide structures on the basis of doped titanium dioxide, obtained by the sol-gel method as gas sensor primary elements was studied. It was established that the varying of the chemical nature of the doping material (indium, gallium, aluminum, iron(III), molybdenum oxides, etc.) permits to improve sensitivity of primary elements towards hydrogen in gas-air mixtures with hydrocarbons. Comparison of gas sensing properties of multioxide systems on the basis of titanium dioxide with different chemical nature and the quantity of doping materials was carried out. TiO_2–MoO_3 system with 1 mol.% of molybdenum was established to display the best gas sensing properties among the researched systems.