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Effect of Heat Treatment on Titanium Dioxide Co-Doped with Tin and Sulfur

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Abstract. Titanium dioxide nanoparticles co-doped with tin and sulfur were studied in the concentrations of 1, 2, 3, 4, and 5 at.% of Sn. The processes of thermal effects on samples and the colorimetric characteristics of thin films obtained from the samples are considered. A color change is noted upon doping, with a transition from white to pale yellow. There is also a noticeable decrease in the mass of the samples during annealing until a temperature of 517 °C is reached, then the mass remains unchanged. The differential thermal analysis curve in this temperature range shows exothermic and endothermic peaks associated with the doping process. The color characteristics are determined and the influence of doping elements on them and the connection with photocatalytic activity are shown.

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