THE INVESTIGATION OF INFLUENCE OF THE SIZE FACTOR AND WATER ON THE STABILIZATION OF THE HIGH-TEMPERATURE MODIFICATIONS ZIRCONIA IN THE ZrO_2-In_2O_3 SYSTEM

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The thermal behaviour nanosized composition of 10 mol.% In_2O_3 – 90 mol.% ZrO_2 by the hydrothermal synthesis (T=400°C, p=70MPa, τ=1h) was investigated. It was established, that the destruction of the cubic phase of ZrO_2 – based solid solutions is taking place at temperature higher 550°C. The temperature ranges of the existence nanoparticles of ZrO_2 of the high-temperature modification, of the role of size factor and water was revealed. The mechanism stabilization of the zirconia was suggested.