RESEARCHES OF DIFFUSION PROCESSES IN POWDER MATERIALS AND THEIR ROLE IN STRUCTURE FORMATION

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S u m m a r y

The equation of Fick's second law describing the diffusion in a porous powder body is solved in the framework of the Green's function method. The proposed mathematical model allowed the influence of the temperature, deformation rate, and porosity of a material on the diffusion coefficient to be analyzed. The microstructure of copper-titanium specimens after the sintering and a plastic deformation is studied. The increase in the temperature, as well as in the rate and the degree of a deformation, is found to promote the alloy homogenization.