

عنوان مقاله:

Thermodynamically study of phase formation of Ni-Ti-Si nanocomposites produced by self-propagating high-temperature synthesis method

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خلاصه مقاله:

Understanding the phase formation mechanisms in self-propagating high-temperature synthesis from the thermodynamical aspect of view is important. In this study, the phase formation of the ternary system of nickel-titanium-silicon was studied by using the HSC software V۶.۰, and phase formation is predicted by calculating the adiabatic temperature of exothermic reaction between reagents. Then, by using X-ray diffractometer analysis, the results of the simulation were evaluated by experimental achievements. Results showed a good correlation between thermodynamical calculation and prediction with experimental. It could be concluded that the equilibrium mechanism is the dominant mechanism in phase formation in the SHS synthesis method. NiTiSi solid solution phase is obtained from the reaction between Ti_5Si_3 and Ni_2Si and Ni

کلمات کلیدی:

Thermodynamic, Adiabatic temperature, Self-propagating high-temperature synthesis, Phase formation

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