Annotation

Pre-diploma practice in the educational qualification of Bachelor, which takes place after the end of the full theoretical course. The objective is the development and improvement of the technological process of intermetallic compounds by SHS in the Ti-Ni system, Ti-Al, Ni-Al. Spend the famous literary review of the literature on this topic. We analyzed and three double heating effect diagrams in the synthesis of each pair of intermetallic compounds.

The essence of the SHS process is self-propagation distributing chemical reaction zone environment that can generate chemical energy to produce a condensed products. The process is obtained by the interaction of the local system to a short heat pulse and subsequently flows into a combustion wave without energy supply due to its own heat. The wave propagation velocity is typically 0.5-1 cm / s. SHS implemented in powder mixtures of different chemical nature. For example Ni + Ti, Ni + Al, at the same time highlighted the adsorption gas, causing significant loss of volume changes and shape of the product. The temperature in the combustion wave mixture of titanium and nickel powders reaches 1200 C.

Experiments combustion processes in the system titanium-nickel equiatomic composition showed that after the SHS regardless of the initial porosity in the initial samples observed three phases: Ni-Ti, Ni-Ti2, Ni3Ti (volume fraction of Ni-Ti2 and Ni3Ti relatively small) conversion degree at CB synthesis associated with the values of the initial porosity of the samples, which is caused by poor connection between components.