Changes in Microstructure and Properties of Ni-Ti Alloy after Addition of Ternary Alloying Element

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In this work, the influence of alloying element in equimolar Ni-Ti alloy was investigated. Selected alloying elements (cobalt, chromium, niobium) were added into Ni-Ti46 wt. % powder mixture. The samples were prepared by self-propagating high-temperature synthesis at temperature of 1100 °C with the use of high heating rate (300 °C/min). The changes in microstructure, phase composition, temperature of reaction between Ni-Ti-X powders, phase transformation temperatures and mechanical properties were studied.

Keywords: Intermetallics, Ni-Ti-X alloy, shape memory, powder metallurgy, self-propagating high-temperature synthesis.

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