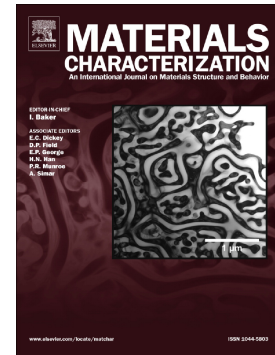


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Effect of plastic deformation on stress-induced martensitic transformation of nanocrystalline NiTi alloy

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Abstract

A nanocrystalline NiTi alloy with average grain size of 16 nm was acquired by cold drawing and annealing. The effect of plastic deformation on stress-induced martensitic transformation of the nanocrystalline NiTi alloy was investigated by the thermochemical cycle tests. The results reveal that the nanocrystalline NiTi alloy experiences plastic deformation during the tensile loading process. The plastic deformed nanocrystalline NiTi alloy keeps the Lüders-type deformation, which is different from the coarse-grained and ultrafine-grained NiTi alloys.

Keywords: Nanocrystalline NiTi alloy; Plastic deformation; Lüders-type deformation; Martensitic transformation; Flow stress

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