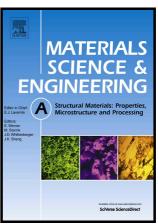
## Author's Accepted Manuscript

Effect of plastic deformation of V nanowires on the transformation characteristics of NiTiV alloys

Xiaobin Shi, Hongliang Yang, Hu Mao, Yongtao Li, Junsong Zhang, Xiaohui Yin



www.elsevier.com/locate/msea

PII: S0921-5093(18)31098-0

DOI: https://doi.org/10.1016/j.msea.2018.08.041

Reference: MSA36812

To appear in: Materials Science & Engineering A

Received date: 15 July 2018 Revised date: 9 August 2018 Accepted date: 12 August 2018

Cite this article as: Xiaobin Shi, Hongliang Yang, Hu Mao, Yongtao Li, Junsong Zhang and Xiaohui Yin, Effect of plastic deformation of V nanowires on the transformation characteristics of NiTiV alloys, *Materials Science & Engineering A*, https://doi.org/10.1016/j.msea.2018.08.041

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## **ACCEPTED MANUSCRIPT**

Effect of plastic deformation of V nanowires on the transformation characteristics of NiTiV alloys

Xiaobin Shi<sup>a,\*</sup>, Hongliang Yang<sup>a</sup>, Hu Mao<sup>a</sup>, Yongtao Li<sup>a,\*</sup>, Junsong Zhang<sup>b</sup>, Xiaohui Yin<sup>a</sup>

<sup>a</sup> School of Materials Science and Engineering, Anhui University of Technology, Maanshan 243032,

China.

<sup>b</sup> School of Mechanical and Chemical Engineering, The University of Western Australia, Perth, Western

Australia 6009, Australia.

\*Corresponding author: Xiaobin Shi. E-mail: shyllen@sina.com

Abstract

The effect of plastic deformation of V nanowires on the transformation characteristics of two NiTiV

alloys was investigated. A significant increase of B19'→B2 transformation temperatures in the deformed

samples during the initial heating process was found. In the subsequent cooling process, the R→B19'

transformation temperatures were higher than the as-annealed samples. Upon second heating, the

B19'→R transformation temperatures were higher than the as-annealed samples, but the change was

much smaller than the  $R \rightarrow B19$ ' transformation. All of these phenomena are closely related to the plastic

deformation of V nanowires during deformation.

Keywords: plastic deformation; martensitic transformation; V nanowires; residual internal stress; DSC

analysis

Introduction

As shape memory alloys, NiTiNb alloys exhibit not only higher strength (critical transformation

stress) but also wider hysteresis than pure NiTi shape memory alloys. For this reason, they have been

used in aeronautic and aerospace engineering [1-4]. Niobium plays an important role on improving the

performance of NiTiNb alloys largely due to its wide hysteresis [2-4]. It was reported recently that the

## Download English Version:

## https://daneshyari.com/en/article/7971531

Download Persian Version:

https://daneshyari.com/article/7971531

<u>Daneshyari.com</u>