Accepted Manuscript

On the modeling of the effect of processing and heat treatment on actuation behaviors of high temperature ternary and quaternary shape memory alloys

J.S. Owusu-Danguah, A.F. Saleeb

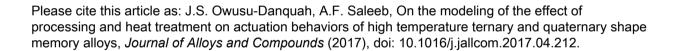
PII: S0925-8388(17)31413-5

DOI: 10.1016/j.jallcom.2017.04.212

Reference: JALCOM 41616

To appear in: Journal of Alloys and Compounds

Received Date: 3 February 2017
Revised Date: 24 March 2017
Accepted Date: 19 April 2017



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 proof before it is published in its final 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

ON THE MODELING OF THE EFFECT OF PROCESSING AND HEAT TREATMENT ON ACTUATION BEHAVIORS OF HIGH TEMPERATURE TERNARY and QUATERNARY SHAPE MEMORY ALLOYS

J.S. Owusu-Danquah^{1a} and A. F. Saleeb^a

^a Department of Civil Engineering, The University of Akron, Akron, OH 44325-3905, USA

Abstract

The *cyclic* actuation behaviors of *five* high-temperature shape memory alloys are studied using a recently-developed multi-mechanism material model. An approach is taken to link *few* parameters in the *mathematical* model to specific SMA response characteristics, hence enabling us to account for the effects of material composition, heat treatments and the processing methods used in producing these alloys. The model results were found to be in good agreement with the experimental data obtained for the as-received/processed/aged forms of the Ti_{50.5}Ni_{24.5}Pd₂₅, Ti₅₀Ni_{24.5}Pd₂₅Sc_{0.5}, and Ni_{50.3}Ti_{29.7}Hf₂₀ materials.

1

¹ Corresponding Author: Tel.:+1 330 972 7692; Fax: +1 330 972 6020 *E-mail address:* jso13@zips.uakron.edu (J.S. Owusu-Danquah)

Download English Version:

https://daneshyari.com/en/article/5459125

Download Persian Version:

https://daneshyari.com/article/5459125

<u>Daneshyari.com</u>