

Accepted Manuscript

Influence of the Mn content on the TiNbxMn alloys with a novel fcc structure

E. Chicardi, C. Aguilar, M.J. Sayagués, C. Garcia-Garrido



PII: S0925-8388(18)30801-6

DOI: [10.1016/j.jallcom.2018.02.306](https://doi.org/10.1016/j.jallcom.2018.02.306)

Reference: JALCOM 45182

To appear in: *Journal of Alloys and Compounds*

Received Date: 26 December 2017

Revised Date: 22 February 2018

Accepted Date: 26 February 2018

Please cite this article as: E. Chicardi, C. Aguilar, M.J. Sayagués, C. Garcia-Garrido, Influence of the Mn content on the TiNbxMn alloys with a novel fcc structure, *Journal of Alloys and Compounds* (2018), doi: 10.1016/j.jallcom.2018.02.306.

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.

Influence of the Mn content on the TiNb_xMn alloys with a novel fcc structure

E. Chicardi^{1,2*}, C. Aguilar², M.J. Sayagués³ and C. Garcia-Garrido^{3*}

¹ Departamento de Ingeniería y Ciencia de los Materiales y del Transporte, Universidad de Sevilla, 41092 Sevilla, Spain.

² Departamento de Ingeniería Metalúrgica y Materiales, Universidad Técnica Federico Santa María, Av. España 1680, Valparaíso, Chile.

³ Instituto de Ciencia de Materiales de Sevilla (ICMSE-CSIC), Américo Vespucio 49, 41092 Sevilla, Spain.

* Corresponding authors. echicardi@us.es / cristina.garrido@icmse.csic.es

Abstract

This work studies the structural evolution of TiNb_xMn alloys (x : 0-12 wt. %) synthesized by mechanical alloying in a planetary ball mill with different milling times between 1h and 120 h. The specimens were characterized by X-ray diffraction patterns, scanning and transmission electron microscopies and Energy-dispersive X-ray spectroscopy. It was observed an evolution of the alloys developed from the raw Ti, Nb and Mn elements to bcc-TiNb_xMn alloys and, finally, novel fcc-TiNb_xMn alloys, with Fm3m space group symmetry, not previously observed. The presence of Mn promotes other interesting effects: a) the decreasing of the crystallite and the particle sizes, reaching values close to 4 nm and 400 nm, respectively, b) the partial amorphization of the fcc-TiNb_xMn alloys due to the combined effect of the Mechanical Alloying and the

Download English Version:

<https://daneshyari.com/en/article/7992756>

Download Persian Version:

<https://daneshyari.com/article/7992756>

[Daneshyari.com](https://daneshyari.com)