

Accepted Manuscript

Improving the mechanical properties of titanium films by texture strengthening

Gang Liu, Yanqing Yang, Xian Luo, Bin Huang, Zongde Kou, Pengtao Li



PII: S1044-5803(17)30737-4
DOI: doi: [10.1016/j.matchar.2017.03.015](https://doi.org/10.1016/j.matchar.2017.03.015)
Reference: MTL 8595
To appear in: *Materials Characterization*
Received date: 5 September 2016
Revised date: 9 January 2017
Accepted date: 12 March 2017

Please cite this article as: Gang Liu, Yanqing Yang, Xian Luo, Bin Huang, Zongde Kou, Pengtao Li , Improving the mechanical properties of titanium films by texture strengthening. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Mtl(2017), doi: [10.1016/j.matchar.2017.03.015](https://doi.org/10.1016/j.matchar.2017.03.015)

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.

Improving the mechanical properties of titanium films by texture strengthening

Gang Liu, Yanqing Yang*, Xian Luo, Bin Huang, Zongde Kou, Pengtao Li

State Key Lab of Solidification Processing, Northwestern Polytechnical University, Xian 710072, PR China

* Electronic mail: yangyanqingdaoshi@163.com

Abstract: This paper focused on the correlations between the texture and mechanical properties of hexagonal Ti6Al7Nb films prepared by magnetron sputtering. The texture evolution was controlled under a combination of substrate temperature and sputtering power. It was found that the substrate temperature was the key factor to dominate the texture evolution. At constant sputtering power 275 W, the films show an increasing (0002) growth from 100 to 300 °C, and then transforms into a random growth at 500 °C. According to two kinds of structure zone models, the intrinsic image of structure evolution from zone T, zone 2, to finally zone 3 was discussed. Nanoindentation measurements indicated that the texture strengthening contributes to the improvement of mechanical properties.

Download English Version:

<https://daneshyari.com/en/article/5454929>

Download Persian Version:

<https://daneshyari.com/article/5454929>

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