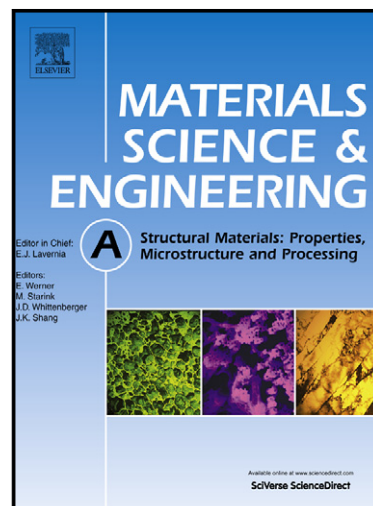


A method to determine main microstructural features influencing mechanical properties of two-phase titanium alloys

Zhifeng Shi, Hongzhen Guo, Chun Qin, Houquan Liang, Zekun Yao



www.elsevier.com/locate/msea

PII: S0921-5093(14)00698-4
DOI: <http://dx.doi.org/10.1016/j.msea.2014.05.086>
Reference: MSA31192

To appear in: *Materials Science & Engineering A*

Received date: 1 April 2014
Revised date: 28 May 2014
Accepted date: 28 May 2014

Cite this article as: Zhifeng Shi, Hongzhen Guo, Chun Qin, Houquan Liang, Zekun Yao, A method to determine main microstructural features influencing mechanical properties of two-phase titanium alloys, *Materials Science & Engineering A*, <http://dx.doi.org/10.1016/j.msea.2014.05.086>

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.

A method to determine main microstructural features influencing mechanical properties of two-phase titanium alloys

Zhifeng Shi, Hongzhen Guo, Chun Qin, Houquan Liang, Zekun Yao

School of Material Science and Engineering, Northwestern Polytechnical University,

Xi'an 710072, People's Republic of China

*Corresponding author, E-mail: titansmith@163.com, Tel: +86 29 88493744, Fax:

+86 29 88492642

Abstract: A new method to determine the major-minor sequence of microstructural features influencing mechanical properties of two-phase titanium alloys was proposed in a ternary microstructural system composed of equiaxed α phase, coarse α plates and residual β matrix in this investigation. The triplex heat treatment in $(\alpha+\beta)$ two-phase field was carried out on two-phase titanium alloys to change the relative contents of three microstructural features. The microstructure-property relationships described in the form of three-dimensional curved surface were established by interpolating property data and corresponding content data of these microstructural features in a stereoscopic triangular coordinate system. The major-minor sequence of microstructural features was determined by comparing the angles between contour lines of property surfaces and coordinate axes. The main microstructural feature influencing alloy's properties in a binary microstructural system was determined by superimposing the vertical section of a three-dimensional property surface along one coordinate axis and its corresponding major-minor sequence distribution. Validated

Download English Version:

<https://daneshyari.com/en/article/7981001>

Download Persian Version:

<https://daneshyari.com/article/7981001>

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