

Effect of heat treatment on the structure, cavitation erosion and erosion-corrosion behavior of Fe-based amorphous coatings

Z.B. Zheng, Y.G. Zheng, W.H. Sun, J.Q. Wang



www.elsevier.com/locate/triboint

PII: S0301-679X(15)00191-7
DOI: <http://dx.doi.org/10.1016/j.triboint.2015.04.039>
Reference: JTRI3667

To appear in: *Tribology International*

Received date: 19 January 2015

Revised date: 30 March 2015

Accepted date: 24 April 2015

Cite this article as: Z.B. Zheng, Y.G. Zheng, W.H. Sun, J.Q. Wang, Effect of heat treatment on the structure, cavitation erosion and erosion-corrosion behavior of Fe-based amorphous coatings, *Tribology International*, <http://dx.doi.org/10.1016/j.triboint.2015.04.039>

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.

Effect of heat treatment on the structure, cavitation erosion and erosion-corrosion behavior of Fe-based amorphous coatings

Z.B. Zheng^a, Y.G. Zheng^{a,*}, W.H. Sun^b, J.Q. Wang^b

^a Key Laboratory of Nuclear Materials and Safety Assessment, Institute of Metal Research, Chinese Academy of Sciences, 62 Wencui Road, Shenyang 110016, P.R. China

^b Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, 72 Wenhua Road, Shenyang 110016, P.R. China

* Corresponding author. Tel.: +86 24 23928381, fax: +86 24 23894149

E-mail: ygzheng@imr.ac.cn (Y.G. Zheng).

Abstract

In this study, high-velocity oxygen-fuel sprayed amorphous coatings have been heat treated at various temperatures to form microstructures with crystalline phases. The structure, micro-hardness, cavitation erosion resistance and erosion-corrosion resistance of these coatings are compared. Crystalline phases are discovered in the coatings after heat treatments at 650 °C and 750 °C. The coating heat treated at 750 °C exhibits the poorest cavitation erosion resistance in 3.5 wt.% NaCl solution among all coatings due to the degraded corrosion resistance. However, the hardness of the crystallized coating can reach 1000 Hv and the erosion-corrosion resistance of the heat treated coating is better than the untreated one.

Key words: Coating; Slurry erosion; Cavitation; Thermally-sprayed.

Download English Version:

<https://daneshyari.com/en/article/7003048>

Download Persian Version:

<https://daneshyari.com/article/7003048>

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