

Accepted Manuscript

The influence of substrate temperature and spraying distance on the properties of plasma sprayed tungsten and steel coatings deposited in a shrouding chamber

Jiří Matějčíček, Monika Vilémová, Barbara Nevrlá, Lenka Kocmanová, Jakub Veverka, Martina Halasová, Hynek Hadraba

PII: S0257-8972(16)31052-0
DOI: doi: [10.1016/j.surfcoat.2016.10.055](https://doi.org/10.1016/j.surfcoat.2016.10.055)
Reference: SCT 21700

To appear in: *Surface & Coatings Technology*

Received date: 21 July 2016
Revised date: 19 October 2016
Accepted date: 21 October 2016



Please cite this article as: Jiří Matějčíček, Monika Vilémová, Barbara Nevrlá, Lenka Kocmanová, Jakub Veverka, Martina Halasová, Hynek Hadraba, The influence of substrate temperature and spraying distance on the properties of plasma sprayed tungsten and steel coatings deposited in a shrouding chamber, *Surface & Coatings Technology* (2016), doi: [10.1016/j.surfcoat.2016.10.055](https://doi.org/10.1016/j.surfcoat.2016.10.055)

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.

The Influence of Substrate Temperature and Spraying Distance on the Properties of Plasma Sprayed Tungsten and Steel Coatings Deposited in a Shrouding Chamber

Jiří Matějček^{a*}, Monika Vilémová^a, Barbara Nevrlá^a, Lenka Kocmanová^{a,b}, Jakub Veverka^{a,b}, Martina Halasová^c, Hynek Hadraba^c

^aInstitute of Plasma Physics, Za Slovankou 3, 18200 Praha, Czech Republic

^bCzech Technical University in Prague, Břehová 7, 11519 Praha, Czech Republic

^cInstitute of Physics of Materials, Žižkova 22, 61662 Brno, Czech Republic

*corresponding author: matejcek@ipp.cas.cz, tel. +420-266053307, fax +42286586389

Abstract

Plasma spraying is among the alternative technologies for manufacturing tungsten-based coatings or graded interlayers for plasma facing components of fusion devices. The main limitation lies in the relatively low thermal conductivity, stemming from the anisotropic porosity and imperfect bonding between the splats. For several materials, it has been shown that increased substrate temperature leads to improved intersplat bonding and increased coating density. However, spraying of metals at elevated temperatures in ambient atmosphere is accompanied by enhanced oxidation.

This work is focused on the effects of substrate temperature on the properties of plasma sprayed tungsten and steel coatings. A range of substrate temperatures was achieved by varying the preheating temperature, pauses between torch passes, spraying distance and

Download English Version:

<https://daneshyari.com/en/article/5465458>

Download Persian Version:

<https://daneshyari.com/article/5465458>

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