

Accepted Manuscript

Title: Deposition of Phase-pure Cr₂AlC Coating by DC Magnetron Sputtering and Post Annealing Using Cr-Al-C Targets with Controlled Elemental Composition but Different Phase Compositions

Authors: Yueming Li, Guorui Zhao, Yuhai Qian, Jingjun Xu, Meishuan Li

PII: S1005-0302(17)30040-3
DOI: <http://dx.doi.org/doi:10.1016/j.jmst.2017.01.029>
Reference: JMST 919

To appear in:

Received date: 16-10-2016
Revised date: 22-12-2016
Accepted date: 13-1-2017

Please cite this article as: Yueming Li, Guorui Zhao, Yuhai Qian, Jingjun Xu, Meishuan Li, Deposition of Phase-pure Cr₂AlC Coating by DC Magnetron Sputtering and Post Annealing Using Cr-Al-C Targets with Controlled Elemental Composition but Different Phase Compositions, <http://dx.doi.org/10.1016/j.jmst.2017.01.029>

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.

Deposition of Phase-pure Cr₂AlC Coating by DC Magnetron Sputtering and Post Annealing Using Cr-Al-C Targets with Controlled Elemental Composition but Different Phase Compositions

Yueming Li^{1,2}, Guorui Zhao^{1,2}, Yuhai Qian¹, Jingjun Xu¹, Meishuan Li^{1,*}

¹Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, China

² University of Chinese Academy of Sciences, Beijing 100039, China

*Corresponding author; Tel.: +86 24 23971145; Fax: +86 24 23891320.

E-mail address: mshli@imr.ac.cn (M.S. Li).

[Received 16 October 2016; Received in revised form 22 December 2016; Accepted 13 January 2017]

Abstract

Polycrystalline Cr₂AlC coatings were prepared on M38G superalloy using a two-step method consisting of magnetron sputtering from Cr-Al-C composite targets at room temperature and subsequent annealing at 620 °C. Particularly, various targets synthesized by hot pressing mixture of Cr, Al, and C powders at 650-1000 °C were used. It was found that regardless of the phase compositions and density of the composite targets, when the molar ratio of Cr:Al:C in the starting materials was 2:1:1, phase-pure crystalline Cr₂AlC coatings were prepared by magnetron sputtering and post

Download English Version:

<https://daneshyari.com/en/article/7952037>

Download Persian Version:

<https://daneshyari.com/article/7952037>

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