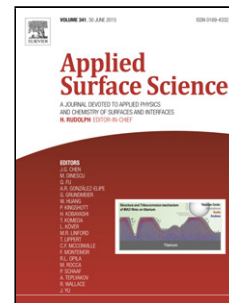


Accepted Manuscript

Title: Application of Valence-to-core X-ray Emission Spectroscopy for Identification and Estimation of Amount of Carbon Covalently Bonded to Chromium in Amorphous Cr-C Coatings Prepared by Magnetron Sputtering

Authors: V.A. Safonov, H. Habazaki, P. Glatzel, L.A. Fishgoit, O.A. Drozhzhin, S. Lafuerza, O.V. Safonova



PII: S0169-4332(17)32578-3
DOI: <http://dx.doi.org/10.1016/j.apsusc.2017.08.219>
Reference: APSUSC 37056

To appear in: *APSUSC*

Received date: 3-6-2017
Revised date: 10-8-2017
Accepted date: 30-8-2017

Please cite this article as: V.A.Safonov, H.Habazaki, P.Glatzel, L.A.Fishgoit, O.A.Drozhzhin, S.Lafuerza, O.V.Safonova, Application of Valence-to-core X-ray Emission Spectroscopy for Identification and Estimation of Amount of Carbon Covalently Bonded to Chromium in Amorphous Cr-C Coatings Prepared by Magnetron Sputtering, *Applied Surface Science* <http://dx.doi.org/10.1016/j.apsusc.2017.08.219>

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.

Application of Valence-to-core X-ray Emission Spectroscopy for Identification and Estimation of Amount of Carbon Covalently Bonded to Chromium in Amorphous Cr-C Coatings Prepared by Magnetron Sputtering

V.A. Safonov^{1,*}, H. Habazaki², P. Glatzel³, L.A. Fishgoit¹, O.A. Drozhzhin^{1,4}, S. Lafuerza³, O.V. Safonova⁵

¹Department of Electrochemistry, Faculty of Chemistry, Moscow State University, Leninskiye Gory, 1, Building 3, Moscow 119991, Russia

²Faculty of Engineering, Hokkaido University, Sapporo, Hokkaido 060-8628, Japan, e-mail: habazaki@eng.hokudai.ac.jp

³ESRF, 6 Rue Jules Horowitz, F38043 Grenoble, France, e-mail: pieter.glatzel@esrf.fr

⁴Skoltech 4Center for Electrochemical Energy Storage, Skolkovo Institute of Science and Technology, 143026, Moscow, Russia, e-mail: drozhzhin@hotmail.com

⁵Paul Scherrer Institute, 5232 Villigen PSI, Switzerland, e-mail: olga.safonova@psi.ch

* Corresponding author, e-mail: safon@elch.chem.msu.ru; tel.: +7 495 939-53-75 (V.A. Safonov).

Highlights

- Magnetron sputtered Cr-C coatings (MSC) contain covalently bounded and free carbon.
- Vtc-XES method allows the amount of covalently bounded carbon in MSC to be estimated.
- Annealing results in a growth of the amount of covalently bounded carbon in MSC.
- Electrodeposited Cr-C samples (as compared with MSC) do not contain free carbon.

Abstract

Cr-C coatings containing different amount of carbon ranging from ~5 to 50 at. % were prepared

Download English Version:

<https://daneshyari.com/en/article/5349263>

Download Persian Version:

<https://daneshyari.com/article/5349263>

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