

SIXTEENTH ANNUAL CONFERENCE

YUCOMAT 2014

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,
September 1-5, 2014
<http://www.mrs-serbia.org.rs>

Programme and The Book of Abstracts

Organised by:
Materials Research Society of Serbia

Endorsed by:
**Federation of European Material Societies
and
Materials Research Society**

Title: THE SIXTEENTH ANNUAL CONFERENCE
YUCOMAT 2014
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Publisher: Materials Research Society of Serbia
Knez Mihailova 35/IV, 11000 Belgrade, Serbia
Phone: +381 11 2185-437; Fax: + 381 11 2185-263
<http://www.mrs-serbia.org.rs>

Editors: Prof. Dr. Dragan P. Uskoković and Prof. Dr. Velimir Radmilović

Technical editor: Aleksandra Stojičić

Cover page: Aleksandra Stojičić and Milica Ševkušić
Back cover photo: Author: Rudolf Getel
Source: Flickr (www.flickr.com/photos/rudolfgetel/4280176487)
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Acknowledgments: This conference is held in honour of Prof. Dragan Uskoković's 70th birthday.



**Materials
Research
Society**

Printed in: Biro Konto
Sutorina bb, Igalo – Herceg Novi, Montenegro
Phones: +382-31-670123, 670025, E-mail: bkonto@t-com.me
Circulation: 220 copies. The end of printing: August 2014

P.S.A.9

TALLOIL DIETHYLENTRIAMINE IMIDAZOLINE AS A CORROSION INHIBITOR FOR MILD STEEL IN CHLORIDE SOLUTION SATURATED WITH CARBON DIOXIDE

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The effect of talloil diethylenetriamine imidazoline (TOFA/DETA imidazoline) on corrosion of mild steel in 3 wt. % NaCl solution saturated with CO₂ was investigated by weight loss measurements (WL) and atomic force microscopy (AFM). Adsorption mechanism was studied using the quartz crystal microbalance measurements (QCM). WL measurements shown that the addition of TOFA/DETA imidazoline inhibitor to 3 wt. % NaCl solution significantly reduced the corrosion rate, while the inhibition efficiency was calculated to be around 95 %. AFM results demonstrated that TOFA/DETA imidazoline decreases the steel surface roughness and effectively protects mild steel from corrosion due to the formation of the inhibitor film. QCM measurements confirmed that TOFA/DETA imidazoline forms self-assembled monolayers on gold coated quartz crystals. The obtained values of standard Gibbs free energy of adsorption, ΔG_{ads}^0 at different temperatures indicate that adsorption of TOFA/DETA imidazoline on the gold surface is spontaneous and favorable.

P.S.A.10

THE HYDROTHERMAL SYNTHESIS OF 1D BIOMEDICAL HYDROXYAPATITE NANOSTRUCTURES

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1D hydroxyapatite nanostructures such as nanotubes, ultra long nanowires and other morphological varieties have been promising material for bone reconstruction and therapy. Advantages like high specific surface, packing properties and mechanical properties make those nanostructures excellent candidates for scaffolds. This work is focused on soft hydrothermal routes for preparing different 1D nanostructures. Using hydroxyapatite formation mechanisms in hydrothermal and solvothermal systems, various chemical parameters, i.e. precursor chemical composition, are investigated for obtaining these 1D materials on gram scale. The synthesized materials are characterized by X – ray diffraction, scanning electron microscopy and laser diffraction methods.