In this issue

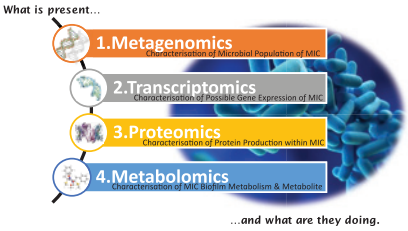
David J. Beale, Avinash V. Karpe, Snehal Jadhav, Tim H. Muster and Enzo A. Palombo

Omics-based approaches and their use in the assessment of microbial-influenced corrosion of metals

DOI 10.1515/corrrev-2015-0046
Corros Rev 2016; 34(1-2): 1–15

Review: Current assessment and potential application of omics-based techniques to understand and characterise biofilms and the microbial-influenced corrosion of metals.

Keywords: corrosion; metabolomics; metagenomics; microbial corrosion; next generation sequencing.



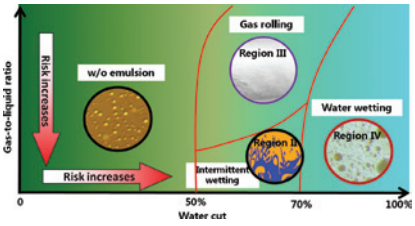
Zi Ming Wang and Jian Zhang

Corrosion of multiphase flow pipelines: the impact of crude oil

DOI 10.1515/corrrev-2015-0053
Corros Rev 2016; 34(1-2): 17–40

Review: The role of crude oil in multiphase flow corrosion was summarized and some useful ideas to reduce pipeline corrosion were suggested.

Keywords: corrosion inhibition; crude oil; emulsion; flow pattern; pipeline corrosion.



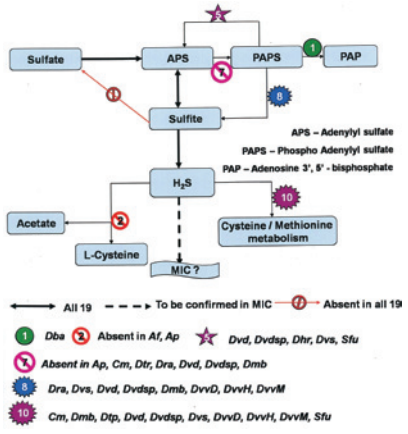
Balakrishnan Anandkumar, Rani P. George, Sundaram Maruthamuthu, Natarajan Parvathavarthini and Uthandi Kamachi Mudali

Corrosion characteristics of sulfate-reducing bacteria (SRB) and the role of molecular biology in SRB studies: an overview

DOI 10.1515/corrrev-2015-0055
Corros Rev 2016; 34(1-2): 41–63

Review: The article focuses on the biotechnological tools implied in sulfate-reducing bacterial (SRB) studies, physiology and habitats of thermophilic SRB, and the theories supporting the corrosion by thermophilic SRB.

Keywords: dissimilatory sulfite reductases; hydrogenases; microbiologically influenced corrosion; thermophilic sulfate-reducing bacteria (SRB).



Sergey Vasilievich Gnedenkov,
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Alexandra Grigorievna Zavidnaya,
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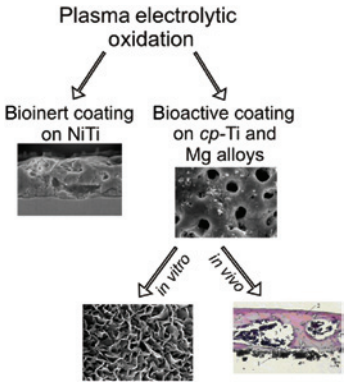
Igor Albertovivh Khlusov and
Denis Pavlovich Opra

Functional coatings formed on the titanium and magnesium alloys as implant materials by plasma electrolytic oxidation technology: fundamental principles and synthesis conditions

DOI 10.1515/corrrev-2015-0069
Corros Rev 2016; 34(1-2): 65–83

Review: The author group's systematical studies related to the surface modification of metallic implant materials with the purpose to improve their corrosion properties and biological response of surrounding tissues are reviewed.

Keywords: bioactivity/bioinertness; coatings; hydroxyapatite; implants; plasma electrolytic oxidation.



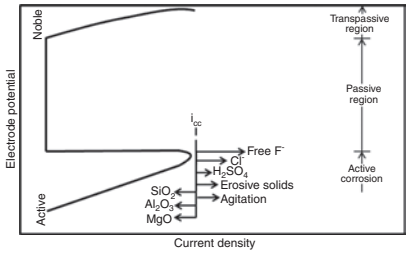
Michael Schorr and Benjamin Valdez

The phosphoric acid industry: equipment, materials, and corrosion

DOI 10.1515/corrrev-2015-0061
Corros Rev 2016; 34(1-2): 85–102

Review: Cases of corrosion in phosporic acid industrial equipment and plants are presented and discussed.

Keywords: corrosion; equipment; materials; phosphate rock; phosphoric acid.



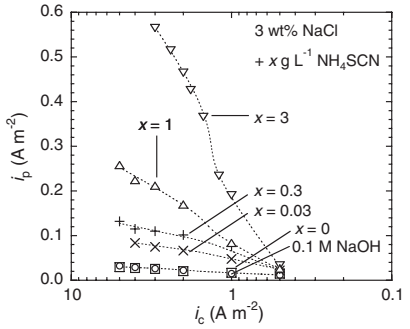
Eiji Akiyama and Songjie Li

Electrochemical hydrogen permeation tests under galvanostatic hydrogen charging conditions conventionally used for hydrogen embrittlement study

DOI 10.1515/corrrev-2015-0049
Corros Rev 2016; 34(1-2): 103–112

Original article: Electrochemical hydrogen permeation tests were performed under various galvanostatic hydrogen charging conditions commonly used for hydrogen embrittlement study, and the effect of concentration of ammonium concentration acting as a promoter, cathodic current density and dissolved oxygen are explicated; the obtained relationship between hydrogen charging current density, i_c, and hydrogen permeation current density, i_p can be used as a guideline for hydrogen charging.

Keywords: diffusion; hydrogen; hydrogen embrittlement; hydrogen permeation; thermal desorption.



Maria Jesus Jiménez-Come, Ignacio J. Turias and Juan Jesus Ruiz-Aguilar

A two-stage model based on artificial neural networks to determine pitting corrosion status of 316L stainless steel

DOI 10.1515/corrrev-2015-0048
Corros Rev 2016; 34(1-2): 113–125

Original article: An automatic way to determine pitting corrosion status of 316L stainless steel using a two-stage model based on artificial neural networks.

Keywords: corrosion modeling; corrosion resistance; pitting; stainless steel.