



CORROSION SCIENCE

The Journal on Environmental Degradation of Materials and its Control

Editor-in-Chief: G. T. BURSTEIN, University of Cambridge, U.K.

An Official Journal of the Institute of Corrosion

CONTENTS

Special Issue

A Century of Tafel's Equation: A Commemorative Issue of Corrosion Science

G. T. BURSTEIN	2855	Editorial
	2857	Julius TAFEL (1862–1918)
Preface		
G. T. BURSTEIN	2858	A hundred years of Tafel's Equation: 1905–2005
V. A. ALVES, A. M. C. PAQUIM, A. CAVALEIRO and C. M. A. BRETT	2871	The nanostructure and microstructure of steels: Electrochemical Tafel behaviour and atomic force microscopy
L. ANICAL, R. MASI, M. SANTAMARIA and F. DI QUARTO	2883	A photoelectrochemical investigation of conversion coatings on Mg substrates
K. ARAMAKI and T. SHIMURA	2901	Ultrathin protective films of two-dimensional polymers on passivated iron against corrosion in 0.1 M NaCl
F. BENTISS, M. LEBRINI and M. LAGRENÉE	2915	Thermodynamic characterization of metal dissolution and inhibitor adsorption processes in mild steel/2,5-bis(<i>n</i> -thienyl)-1,3,4-thiadiazoles/hydrochloric acid system
G. T. BURSTEIN and R. M. ORGAN	2932	Repassivation and pitting of freshly generated aluminium surfaces in acidic nitrate solution
J.-P. CAI and S. B. LYON	2956	A mechanistic study of initial atmospheric corrosion kinetics using electrical resistance sensors
D. S. CARVALHO, C. J. B. JOIA and O. R. MATTOS	2974	Corrosion rate of iron and iron-chromium alloys in CO ₂ medium

Contents continued on outside back cover

<http://www.elsevier.com/locate/corsci>

Continued from front cover

- F. CUI, F. J. PRESUEL-MORENO and R. G. KELLY 2987 Computational modeling of cathodic limitations on localized corrosion of wetted SS 316L at room temperature
- H. DAFYDD, D. A. WORSLEY and H. N. McMURRAY 3006 The kinetics and mechanism of cathodic oxygen reduction on zinc and zinc-aluminium alloy galvanized coatings
- B. ELSENER 3019 Corrosion rate of steel in concrete—Measurements beyond the Tafel law
- H. J. FLITT and D. P. SCHWEINSBERG 3034 Evaluation of corrosion rate from polarisation curves not exhibiting a Tafel region
- J. R. GALVELE 3053 Tafel's law in pitting corrosion and crevice corrosion susceptibility
- E. GILEADI and E. KIROWA-EISNER 3068 Some observations concerning the Tafel equation and its relevance to charge transfer in corrosion
- E. M. GUTMAN 3086 Can the Tafel equation be derived from first principles?
- M. HOLLOWAY and J. M. SYKES 3097 Studies of the corrosion of mild steel in alkali-activated slag cement mortars with sodium chloride admixtures by a galvanostatic pulse method
- M. KAMRUNNAHAR, J. E. BAO and D. D. MACDONALD 3111 Challenges in the theory of electron transfer at passive interfaces
- N. J. LAYCOCK, J. S. NOH, S. P. WHITE and D. P. KROUSE 3140 Computer simulation of pitting potential measurements
- F. MANSFELD 3178 Tafel slopes and corrosion rates obtained in the pre-Tafel region of polarization curves
- F. J. MARTIN, G. T. CHEEK, W. E. O'GRADY and P. M. NATISHAN E. McCAFFERTY 3187 Impedance studies of the passive film on aluminium
- G. PALIWODA-POREBSKA, M. STRATMANN, M. ROHWERDER, K. POTJE-KAMLOTH, Y. LU, A. Z. PICH and H.-J. ADLER 3202 Validation of corrosion rates measured by the Tafel extrapolation method
- J. M. SANCHEZ-AMAYA, R. A. COTTIS and F. J. BOTANA 3216 On the development of polypyrrole coatings with self-healing properties for iron corrosion protection
- H. RADHAKRISHNAN, A. G. CARCEA and R. C. NEWMAN 3234 Influence of Pb^{++} ions on the dissolution and passivation of nickel and Ni-21Cr in acidic solutions
- K. RAHMOUNI, M. KEDDAM, A. SRHIRI and H. TAKENOUTI 3249 Corrosion of copper in 3% NaCl solution polluted by sulphide ions
- B. ROSBORG, J. PAN and C. LEYGRAF 3267 Tafel slopes used in monitoring of copper corrosion in a bentonite/groundwater environment
- J. M. SANCHEZ-AMAYA, R. A. COTTIS and F. J. BOTANA 3280 Shot noise and statistical parameters for the estimation of corrosion mechanisms

continued on inside back cover

Indexed/Abstracted in Current Contents, Engng Ind Monthly & Author Index, PASCAL/CNRS Database, Corrosion Abstracts, Metals Abstracts, Chemical Abstracts, INSPEC Database, BMT Abstracts, Petroleum Abstracts, Aqua Abstr, Cam Sci Abstr, Chem Eng Abstr, Chem Haz in Indus, Edi Metal Abstr, Environ Per Bibl, Materials Science Citation Index, Applied Science & Technology Index, Wilson Applied Science & Technology Abstracts, Current Technology Index (CTI)

ISSN 0010-938X

Also available on

SCIENCE @ DIRECT®
www.sciencedirect.com



0010-938X(200512)47:12;1-0