



Symposium on Advances in Electrochemical Techniques for Corrosion Monitoring and Measurement

Sponsored by ASTM Committee G01 on Corrosion of Metals and Subcommittee G01.11 on Electrochemical Techniques

May 22-23, 2007
Sheraton Norfolk Waterside
Norfolk, Virginia

Symposium Chair: Sankara Papavinasam
CANMET-MTL
Ottawa, Ontario
Canada

Co-Chairman Neal S. Berke
W. R. Grace & Company Construction Products
Cambridge, Massachusetts
USA

Co-Chairman Sean Brossia
CC Technologies
Dublin, Ohio
USA

TUESDAY, MAY 22, 2007

8:00 AM

Opening Remarks

Sankara Papavinasam, Symposium Chairman

SESSION 1

Session Chair: Neal S. Berke
W. R. Grace & Company Construction Products
Cambridge, Massachusetts
USA

8:05 AM

Introduction to ASTM International

L. Morrissey, Manager, Technical Committee Operations Division, ASTM Headquarters

8:15 AM

Electrochemical Techniques in Corrosion; Status, Limitations and Needs – Invited Presentation

G. S. Frankel, The Ohio State University, Columbus, Ohio, USA

9:15 AM

Use of Coupled Multi-Electrode Arrays to Advance the Understanding of Selected Corrosion Phenomena

J. R. Scully, N. D. Budiansky, F. Bocher, H. Cong, and M. F. Hurley, University of Virginia, Charlottesville, Virginia, USA

9:45 AM BREAK

SESSION 2

Session Chair: Sean Brossia
 CC Technologies
 Dublin, Ohio
 USA

10:00 AM

Comparison of Corrosion Rate Measurement Using Electrochemical Frequency Modulation and Traditional Methods

D. Loveday and B. Rodgers, Gamry Instruments, Inc., Warminster, Pennsylvania, USA

10:30 AM

An Electrochemical Investigation of the Degradation of Friction Stir Welds

D. B. Mitton, M. Cavalli, D. A. Larson, University of North Dakota, Grand Forks, ND, U.S.A.; V. J. Gelling, North Dakota State University, Fargo, ND, U.S.A.; R. Mishra, University of Missouri Rolla, Rolla, Mo, U.S.A.; J. Rindt, Alion, Grand Forks, ND, U.S.A.; F. Bellucci, University of Naples, Naples, Italy.

11:00 AM

An Account of Benefits and Drawbacks of Using EIS in Corrosion Investigations

J. K.-J. Lee and S. Nescic, Ohio University, Athens, Ohio, USA

11:30 AM

Application of Electrochemical Techniques to Corrosion Under Insulation Study

C. Mendez, J. R. Vera, and G. Ruschau, CC Technologies, Dublin, Ohio, USA

12:00 PM LUNCH (On Your Own)

SESSION 3

Session Chair: Sankara Papavinasam
CANMET-MTL
Ottawa, Ontario
Canada

1:00 PM

Study of Initiation of Corrosion of a Steel Panel from a Defect in Coating Using Localized Electrochemical Impedance Spectroscopy (LEIS)

X. Wu, E. Montalvo, and W. Shen, Eastern Michigan University, Ypsilanti, Michigan, USA

1:30 PM

Characterization of Nano-crystalline Copper and Nickel Thin-layer Coatings with Impedance Measurements

M. Trzaska, Z. Trzaska, Warsaw University of Technology, Warsaw, Poland

2:00 PM

Using Electrochemical Impedance Spectroscopy to Predict the Corrosion Resistance of Coated Metal Panels

E. L. Floyd, Consultant, Independence, Ohio, USA; T. Provder, J. Gibson and B. Mehta, Eastern Michigan University, Ypsilanti, Michigan, USA; and P. Smith and J. Escarsega, U. S. Army Research Lab, Aberdeen Proving Ground, Maryland

2:30 PM

BREAK

SESSION 4

Session Chair: Neal S. Berke
W. R. Grace & Company Construction Products
Cambridge, Massachusetts
USA

2:45 PM

The Challenges of Applying Laboratory Quality Electrochemical Corrosion Measurements in the Field

D. A. Eden, Honeywell International, Houston, Texas, USA

3:15 PM

Using Electrochemical Noise to Understand Corrosion in Engineering Applications

R. E. Ricker and U. Bertocci, National Institute of Standards and Technology, Gaithersburg, Maryland, USA

3:45 PM

Corrosion Monitoring of Offshore Pipelines

A. S. Khanna, Indian Institute of Technology, Bombay, India

4:15 PM

An Electrochemical Biosensor for Online Monitoring of Sulphate Reducing Bacteria

R. D. Sooknah, S. Papavinasam, M. Attard and R.W. Revie, CANMET Materials Technology Laboratory, Ottawa, Ontario, Canada; and O. Dinardo and D. Gould CANMET Mining and Mineral Sciences Laboratory, Ottawa, Ontario, Canada

4:45 PM

Electrochemical Impedance Spectroscopy (EIS) Technique to Monitor Water Uptake of External Polymeric Pipeline Coatings

S. Papavinasam, M. Attard, and R.W. Revie, CANMET Materials Technology Laboratory, Natural Resources Canada, Ottawa, Ontario, Canada

5:15 PM

Remarks

S. Papavinasam, Symposium Chair

5:25 PM **SYMPOSIUM ADJOURNS FOR THE DAY**

5:30 PM – 6:30 PM RECEPTION (CASH BAR)

WEDNESDAY, MAY 23, 2007

SESSION 5

8:00 AM

Opening Remarks

S. Papavinasam, Symposium Chairman

8:05 AM

An Overview of ASTM Committee G01 on Corrosion of Metals

N. S. Berke, W. R. Grace & Co., Cambridge, Massachusetts, USA

Session Chair: Sean Brossia
CC Technologies
Dublin, Ohio
USA

8:15 AM

Development of Electrochemical Standards for Corrosion Testing – Forty Years of Progress – Invited Presentation

S. W. Dean, Dean Corrosion Technology, Inc., Allentown, Pennsylvania, USA

9:15 AM

Monitoring and Prognostication of Localized Corrosion – A Review

N. Sridhar, DNV Research and Innovation USA, Dublin, Ohio, USA

9:45 AM

BREAK

SESSION 6

Session Chair: Sankara Papavinasam
CANMET-MTL
Ottawa, Ontario
Canada

10:00 AM

Measuring the Repassivation Potential of Alloy 22 by a Potentiodynamic-Galvanostatic-Potentiostatic Method

K. J. Evans and R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, California, USA

10:30 AM

Generation of Damage Functions for the Localized and Passive Corrosion of Alpha Titanium Alloys

D. W. Shoesmith, University of Western Ontario, London, Ontario, Canada

11:00 AM

Coupled Multielectrode Array Sensors for Corrosion Monitoring

L. Yang, Southwest Research Institute, San Antonio, TX

11:30 AM

The Reference Electrode: Taken for Granted, Ignored, Abused!

R. S. Rodgers, Gamry Instruments, Inc., Warminster, Pennsylvania, USA

12:00 PM

LUNCH (On Your Own)

SESSION 7

Session Chair: Neal S. Berke
W. R. Grace & Company Construction Products
Cambridge, Massachusetts
USA

1:00 PM

Corrosion Behavior of Novel Phosphoric Irons and Commercial Grade Steels in Simulated Concrete Pore Solutions

G. Sahoo and R. Balasubramaniam, Indian Institute of Technology, Kanpur, India

1:30 PM

New Faster Measurement Methods of Polarization Resistance in the Non Steady State Period: Application to Reinforcement Corrosion

S. Garcia and C. Andrade, Institute of Construction Science- Madrid-Spain

2:00 PM

Examples of Monitoring of Corrosion Parameters by Embedded Sensors in Real Structures and a Methodology to Obtain a Representative Corrosion Rate Value

I. Martinez and C. Andrade, Institute of Construction Science, Madrid, Spain

2:30 PM

BREAK

SESSION 8

Session Chair: Sean Brossia
CC Technologies
Dublin, Ohio
USA

2:45 PM

Comparison of Measurements Provided by Several Corrosion Rte Meters with Modulated Confinement of the Current

I. Martinez, C. Andrade and N. Rebolledo, Institute of Construction Science, Madrid-Spain;
E. Marie-Victoire, Institut de Restauration- Paris, France; V. Bouteiller, Laboratoire Central des Ponts et Chaussées, Paris, France

3:15 PM

Electrochemical Behavior of Anodized Aluminium Alloys: Electrochemical Impedance Spectroscopy versus Optical Techniques

K. Habib, KISR, SAFAT, Kuwait

3:45 PM

Measurement of Corrosion Potentials of the Internal Surface of High Pressure Operating Oil and Gas Pipelines

A. Demoz and K. Michaelian, CANMET Energy Technology Centre, Devon, Alberta, Canada; and S. Papavinasam and R.W. Revie, CANMET Materials Technology Laboratory, Ottawa, Ontario, Canada

4:15 PM

Modified Electrochemical Potentiokinetic Reactivation Method for Evaluation of Steam Turbine Blades

J. Strejcius, Skoda Research Ltd, Plzen, Czech Republic

4:45 PM

Electrochemical Quartz Crystal Microbalance Technique to Monitor Diffusion through External Polymeric Pipeline Coatings

S. Papavinasam, M. Attard, and R.W. Revie, CANMET Materials Technology Laboratory, Natural Resources Canada, Ottawa, Ontario, Canada

5:15 PM

Closing Remarks

S. Papavinasam, Symposium Chairman

5:25 PM **SYMPOSIUM ADJOURNS**

5/8/07