



Corrosion Forms & Control for Infrastructure

Victor Chaker, editor



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Peer Review Policy

Each paper published in this volume was evaluated by three peer reviewers. The authors addressed all of the reviewers' comments to the satisfaction of both the technical editor(s) and the ASTM Committee on Publications.

The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of these peer reviewers. The ASTM Committee on Publications acknowledge with appreciation their dedication and contribution to time and effort on behalf of ASTM.

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Foreword

This publication, *Corrosion Forms and Control for Infrastructure*, contains papers presented at the symposium held in San Diego, CA on 3-4 Nov., 1991. The symposium was sponsored by ASTM Committee G-1 on Corrosion of Metals, Subcommittee G1.10 on Corrosion in Soils, and G1.14 on Corrosion of Reinforcing Steel. V. Chaker, Port Authority of NY and NJ in New York, NY was the Symposium Chairman. Symposium session chairmen were N.S. Berke of W.R. Grace and Co. in Cambridge, MA and E. Escalante of the National Institute of Standards and Technology (NIST) in Gaithersburg, MD.

About the Cover

The art work is by Melanie Wilson-Ligh of the Port Authority of NY and NJ, New York, NY.

The design concept shows that by using available technology, corrosion of the infrastructure can be controlled and that the life expectancy of both the existing and new infrastructure can be extended indefinitely.

The bottom pictures depict the corrosion impact on infrastructure. The middle pictures represent the state-of-the-art in sensors and computers to help control the corrosion of the infrastructure. The top pictures represent well-maintained infrastructures.

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Overview

The symposium, Corrosion Forms and Control for Infrastructure was organized to gather the state-of-the-art information in several fields directly related to the corrosion of infrastructure. The accelerated rate of deterioration of this national asset is well recognized. Since the cost of its replacement is prohibitive, its maintenance and the extension of its life expectancy are mandatory. To achieve this goal, new life prediction tools are needed, sensors for testing and monitoring must be developed, and artificial intelligence will have to be used for speed and accuracy.

The papers presented at the symposium and included in this volume met their purpose. The papers covered most of the topics targeted and publicized in the Call For Papers. The topics covered areas such as highway and bridge deterioration, numerical analysis, atmospheric corrosion, electrochemical impedance applications, stray current control, innovative solutions for pipes, corrosion of rebar in concrete, life cycle analysis, sensors for monitoring infrastructure corrosion, and corrosion forms in transportation infrastructure.

This book is useful to both the practicing engineer and the scientists, since it covers numerous practical experiences and applications as well as new concepts for sensors, tools, and computerized techniques. It offers facts and figures for modes of deterioration as well as new solutions for extending the life expectancy of structures. In addition, it gives innovative applications of existing technology to predict and control corrosion of many structures. This book will serve the engineering and scientific community in promoting the use of innovative successful techniques for solving some of the corrosion problems of infrastructure. It will also stimulate the manufacturing community to take some risks in developing needed tools for this important field.

This publication deals with the current problems facing the engineering community, with all its daring challenges. It contains new solutions for current problems and pioneer methodology to avoid future problems. In summary, it could be conceived as the link between the past, present, and future of corrosion control of infrastructure.

Acknowledgment

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