

CORROSION TESTS AND STANDARDS

APPLICATION AND INTERPRETATION
2ND EDITION

ROBERT BABOIAN, EDITOR



Corrosion Tests and Standards: Application and Interpretation—Second Edition

Robert Baboian, Editor

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Dr. Baboian has been dedicated to the research and development of corrosion resistant materials and devices, environmental effects on materials, and the use of electrochemical techniques in corrosion testing for almost 40 years. He holds 15 U.S. patents, is the editor of 13 books, and has authored over 170 technical publications. He has served on a number of Government and Academic Committees and has lectured throughout the world, and his services were donated by TI to the National Park Service as a corrosion consultant on the Statue of Liberty restoration program. Recently, he has researched the sinking of the *Titanic* and has proposed theories on corrosion mechanisms causing the failure.

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Foreword

THE REVISED PUBLICATION, *Corrosion Tests and Standards: Application and Interpretation*, is sponsored by ASTM Committee G1 on Corrosion of Metals and edited by Robert Baboian, RB Corrosion Service. Section editors include Robert Baboian, Sheldon W. Dean, Dean Corrosion Technology, Harvey P. Hack, Northrup Grumman Corporation, Edward Hibner, Special Metals Corporation, and John R. Scully, University of Virginia. This is the second edition of Manual 20 in the ASTM Manual series.

Preface

CORROSION CONTINUES to be a problem of worldwide importance. The second edition of this manual has been prepared and published to address this form of degradation. Corrosion is often neglected, but it seriously impacts our economy, jeopardizes human health and safety, and impedes technological progress. The most important factors in addressing corrosion and its control are: (1) recognizing and understanding the mechanisms, (2) developing solutions to the problems, and (3) implementing those solutions. Corrosion tests and standards are very significant in addressing each of these factors. Therefore, this manual includes guidelines for recognizing types of corrosion as well as fundamentals of testing and provides the tools required for making calculations, interpretations, and correlations. It serves as a source book of procedures, equipment, and standards used in testing.

The editor and section editors have coordinated the revision and update of this book so that most recent technologies are included in each section. In most cases, the original authors of chapters have made the revisions. In some cases, new authors needed to be chosen, or the editors performed that task. Users of the manual will find that it is an invaluable and instructive tool, as well as a source book on how to conduct corrosion tests, interpret results, and use standards.

The second edition of the manual is the result of a massive effort of planning, writing, reviewing, editing, production, and marketing. It would not have been possible without the outstanding efforts of the ASTM staff and the valuable and competent work of the editors and over 400 experts in the field that donated their time as authors and reviewers. They represent industrial, educational, and government organizations, and their contributions are greatly appreciated.

Robert Baboian
Editor

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