Corrosion and Corrosion Control: An Introduction to Corrosion Science and Engineering, 4th Edition
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DESCRIPTION

The classic book on corrosion science and engineering—now in a valuable new edition

The ability to prevent failures by managing corrosion is one of the main global challenges of the twenty-first century. However, most practicing engineers and technologists have only a basic understanding of how they can actively participate in this urgent economic and environmental issue. Now, students and professionals can turn to this newly revised edition of the trusted Corrosion and Corrosion Control for coverage of the latest developments in the field, including advances in knowledge, new alloys for corrosion control, and industry developments in response to public demand.

This Fourth Edition presents an updated overview of the essential aspects of corrosion science and engineering that underpin the tools and technologies used for managing corrosion, enhancing reliability, and preventing failures. Although the basic organization of the book remains unchanged from the previous edition, this new update includes:

- An introduction to new topics, including the element of risk management in corrosion engineering and new advanced alloys for controlling corrosion
Expanded discussions on electrochemical polarization, predicting corrosion using thermodynamics, steel reinforcements in concrete, and applications of corrosion control technologies in automotive, nuclear, and other industries

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A stronger emphasis on environmental concerns and regulations in the context of their impact on corrosion engineering

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A discussion of the challenge of reliability in nuclear reactors; stainless steels; the concept of critical pitting temperature; and information on critical pitting potential (CPP)

Complemented with numerous examples to help illustrate important points, *Corrosion and Corrosion Control*, Fourth Edition enables readers to fully understand corrosion and its control and, in turn, help reduce massive economic and environmental loss. It is a must-read for advanced undergraduates and graduate students in engineering and materials science courses, as well as for engineers, technologists, researchers, and other professionals who need information on this timely topic.

### ABOUT THE AUTHOR

**R. Winston Revie**, PhD, has been Research Scientist at the CANMET Materials Technology Laboratory in Ottawa, Canada, for three decades. He is a past chair of the ASM Canada Council and of The Electrochemical Society (Canadian Section), and a past president of the Metallurgical Society of CIM. He is on the Board of Directors of NACE International. Dr. Revie was editor of the Second Edition of Uhlig's Corrosion Handbook (Wiley).

THE LATE HERBERT H. UHLIG, PhD, was Professor of Metallurgy and served as director of MIT's Corrosion Laboratory for twenty-nine years. He published over 200 scientific papers and edited The Corrosion Handbook. Among many distinguished honors, he served as president of The Electrochemical Society and was a Guggenheim Fellow.

### NEW TO EDITION

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Places a greater emphasis on environmental issues (like contamination potential of corrosion inhibitors)
Introduces new topics like the corrosion of nanomaterials and the element of risk management in corrosion engineering and control

Expanded discussions on electrochemical polarization, predicting corrosion using thermodynamics, steel reinforcements in concrete, and applications of corrosion control technologies in automotive, nuclear, and other industries

A discussion of the challenge of reliability in nuclear reactors; stainless steels; the concept of critical pitting temperature; and information on critical pitting potential (CPP)

FEATURES

- Uses a quantitative approach (including basic equations) to discuss the fundamental thermodynamic and electrochemical principles that cause corrosion and treats practical corrosion problems and methods of protection and prevention
- Adds coverage of new topics such as the corrosion of nanomaterials and the element of risk management in corrosion control and engineering
- Covers the latest developments in the field, including advances in knowledge, new alloys for corrosion control, and industry developments in response to public demand
- Includes problems and expanded questions in the text
- Includes a solutions manual (via a downloadable FTP site - please fill out this online form to request access)

For additional product details, please visit https://www.wiley.com/en-us