

## BOOK REVIEWS

### Ichiro SUZUKI: Corrosion-Resistant Coatings Technology

Marcel Dekker, Inc. New York and Basel, 1989. pp. 272.

The book was published as the Volume 2 of the series Corrosion Technology. It summarizes the current status of corrosion-resistant coatings, their physical and chemical properties, production methods and protective abilities in various natural environment.

It reviews metallic, inorganic and organic coatings and examines their protection against moisture, water, pollutants and caustic substances.

Giving a clear, brief and up-to-date review about different coatings, the book is published chiefly for students, engineers and experts interested in corrosion.

The book is divided into six chapters. At the end of each chapter is given the list of most important papers and the special books emphasized for further help to get deeper study (altogether 265 references). The book is well illustrated, it contains 95 instructive figures, photographs and 36 informative tables, respectively.

In the first chapter, the principles of corrosion protection by coatings on the basis of electrochemistry are very briefly summarized (18 pages). The others discuss the main type of coatings, their structures and characters, the mechanisms of corrosion protection, production methods and main products used in practical life.

It contains numerous data—always signing the exact source—for corrosion character of the different coatings (corrosion rate, service lifetime, exposure test results etc.), and examines behaviour of the different environments for the corrosion protection, such as: natural atmospheric condition, wet period, location and ratio of time-of-wetness, industrial area, fresh water, sea water, outdoor- and indoor conditions, etc.).

At the end of chapters it gives examples where coatings are successfully applied in the industrial and practical life in nowadays.

Only one critical remark: the use of some units (kcal, mil, lb, gal, g/l, cmHg) differ from the international accepted SI system.

In the chapters are discussed the following types of coatings:

2—Sacrificial metal coating (Zn, Al, Mg, Cd and their alloys) made by five various processes (hot dipping, electrodeposition, spraying, diffusion, cladding)

3—Noble metal coatings (Cr, Ni, Sn, Pb) made by electrodeposition and electroless plating.

4—Noble metal coatings (Cu, Ag, Au, Pt and their alloys) made by electrodeposition and cladding.

5—Conversion coatings (chromate, phosphate, oxide) made by electrolyses or dipping process.

6—Organic or paint coatings.

The structure of this book is very good and clear for the beginners too and gives a brief summary about corrosion-resistant coatings technologies used in nowadays. It helps experts to select and apply the widely used metallic, inorganic and organic coatings in natural environments.

Dr. Pál HENCSEI

## Surface Modification Technologies an Engineer's Guide

Ed.: T. S. SUDARSHAN

There is an increasing need for the production of hard, corrosion-resistant, wear-resistant, and fatigue-resistant surface on core materials that can then be selected for their other properties. The engineering solution is to provide the material with surface properties that are different from those of the bulk. The surface modification can be achieved by different methods basing on classical rules or using the latest results of the developments in the fields of e.g. plasma, lasers or electron beams.

This book summarizes these methods and gives a good guidance to the different techniques. Chapters written by experts from all over the world deals with composite coatings, chemical vapor deposition, ion beam-based techniques, sputtering techniques, plasma treatments, surface alloying using lasers, electron beam coating, boriding and diffusion metallizing.

Each chapter contains not only references but industrial application as well. Including some new aspects of coating or alloying of surfaces, it provides a view of the vast scope of use of some of these techniques.

This book can serve as a comprehensive handbook for engineers dealing with surface modification in the fields of microelectronics and communication, power plants, transportation or heavy-duty machinery used in manufacturing.

Collecting and demonstrating the most up-to-date techniques this book seems to be a useful text for a senior-level course in surface modification technologies as well.

L. Gy. NAGY