

New Books and Publications

Electrochemistry and Interfacial Chemistry for the Environment

Pure and Applied Chemistry, Vol. 73, No. 12, 2001.

Modern chemistry has clearly played a key role in the improvement of quality of life around the world. However, these advances come with a price: increased contamination of the environment by substances that can disrupt endogenous biological systems—sometimes severely—and that ultimately impact on humans as well. Accordingly, it is appropriate for the chemical sciences community to actively address development of green chemical processes and environmental remediation. A number of efforts in this direction have been initiated in various IUPAC Divisions.

The Physical and Biophysical Chemistry Division has a long-standing commitment to environmental issues. A recent example was the division's workshop on Electrochemistry and Interfacial Chemistry in Environmental Clean-Up and Green Chemical Processes that was held from 6–7 April 2001 in Coimbra, Portugal. The project, which was organized by Professor Brett, was jointly funded by IUPAC and by the International Council for Science. The workshop brought together specialists in the area of electrochemistry and interfacial chemistry to address approaches to the removal of potential contaminants from industrial wastes in water, soil, and the atmosphere, the use of electrochemistry for the generation of reactants, removal of contaminants and electroanalysis, and the use of colloids, microemulsions, and nanoparticles for remediation. Photocatalysis also figured prominently in discussions. An additional key element in the workshop was a tutorial session, prior to the lectures and poster session, designed to acquaint everyone with basic concepts.

The objective of the project was to increase awareness within the worldwide industrial and academic chemical community of the importance of electrochemistry and surface chemistry in environmental clean-up and in environmentally friendly industrial chemical processes. The negative impact on the environment of industrial chemical processes and other fabrication procedures is well known, and significant efforts have been made to reduce this impact through less-polluting and more energy-efficient processes with appropriate recycling and effluent treatment. Treatment of stored solid or liquid waste and remediation of contaminated land resulting from pollution are other problematic areas which deserve attention. Electrochemistry and interfacial chemistry have an important role to play in all these

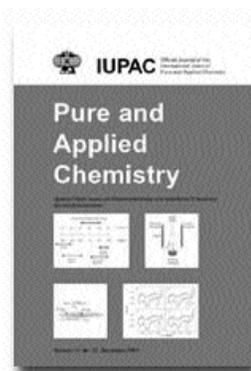
areas involving solid and liquid pollutants. There is a need to demonstrate and clarify what can be achieved using presently available technology and to point out future tendencies in technological development.

The workshop was directed toward three types of participants who have particular interest in the combination of electro- or interfacial chemistry and the environment: specialists of international standing, scientists from developing countries describing the specific problems their countries face, and researchers and students concerned with environmental problems.

The organizing committee of C. M. A. Brett (Chairman), J. F. Rusling, L. Koopal, and J. Gregory arranged a program of invited lectures to reflect the contributions that can be made by electrochemistry and interfacial chemistry to solving and preventing some of the present environmental pollution problems. The workshop comprised 16 invited lectures and 40 poster contributions, with 77 participants from 18 countries. The workshop format allowed ample time for fruitful discussion of the advantages and limitations of the electrochemical and interfacial chemistry approaches at the small-scale level up to large-scale facilities.

This Special Topic Issue of *Pure and Applied Chemistry* on “Electrochemistry and Interfacial Chemistry for the Environment” was derived from the workshop. Workshop participants were asked to submit articles for the issue based on their presentations. The articles reflect well the panorama of subjects covered in the workshop, including fundamentals and the importance of current and new applications of electrochemistry and interfacial electrochemistry to environmental clean-up and green chemical processes. Topics covered include electrochemical reactors, electrosynthesis, electrochemical sensors, corrosion, photoelectrochemical degradation of pollutants, colloids for waste treatment, and industrial applications. The issue emphasizes the challenge of dealing with environmental pollution and clean-up, consistent with the needs and resources of various countries around the world, while suggesting some possible solutions.

With a foreword by G. W. Wilson, and a preface by C. Brett, this issue was coordinated by the IUPAC Special



Topics editor, Professor James R. Bull. For more information on the special topics project, go to <http://www.iupac.org/publications/ci/2000/july/special_topics_project.html>.



www.iupac.org/publications/pac/2001/7312/index.html

Handbook of Pharmaceutical Salts: Properties, Selection, and Use

P. H. Stahl and G. Wermuth (editors)

Verlag Helvetica Chimica Acta, Zürich, 2002.

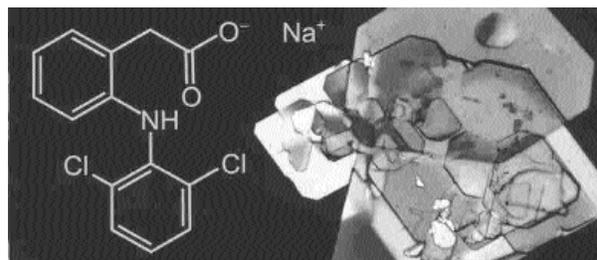
(ISBN 3-906390-26-8)

Because an estimated half of all drug molecules used in medicine are administered as salts, the selection of a suitable salt for a drug candidate is recognized as an essential step in the preclinical phase of drug development. Surprisingly, however, the scientific literature on this topic is rather limited and scattered throughout numerous journals and patents. The majority of medicinal chemists in the pharmaceutical industry whose primary focus is the design and synthesis of novel compounds as future drugs are organic chemists for whom salt formation is often a marginal activity restricted to the short-term objective of obtaining crystalline material. Because a comprehensive resource that addresses the preparation, selection, and use of pharmaceutically active salts has not been available, these scientists may forego the opportunities for increased efficacy and improved drug delivery provided by selection of an optimal salt.

To fill this gap in the pharmaceutical bibliography, an international team of 17 authors from academia and pharmaceutical industry contribute to this volume and present the necessary theoretical foundations as well as a wealth of detailed practical experience in the choice of pharmaceutically active salts. Altogether, the contributions in this book reflect the multidisciplinary nature of the science involved in selection of suitable salt forms for new drug products. The editors have taken care to address every conceivable aspect of the preparation of pharmaceutical salts.

This book is destined to be an essential reference for students of medicinal and pharmaceutical chemistry, and an indispensable handbook for research-and-development chemists, analytical chemists, biologists, development pharmacists, regulatory and patent specialists, and medicinal scientists engaged in preclinical development of drugs. This comprehensive up-to-date guide will be an instructive companion for all scientists involved in research and development of drugs and, in particular, of pharmaceutical dosage forms.

This reference is the result of an IUPAC project chaired by Prof. Camille G. Wermuth, the former presi-



dent of IUPAC's Chemistry and Human Health Division.



www.iupac.org/publications/books/author/wermuth02.html

Green Chemistry—the Japanese translation of the special topic issue of *Pure and Applied Chemistry* (Vol. 72, No. 7, 2000)

Translation coordinated by Junshi Miyamoto (2001). (ISBN 4-7598-0734-9)

The original publication and its translation are to promote and disseminate awareness of environmentally compatible synthetic pathways (green chemistry) throughout the academic and industrial scientific research community. In 1999 an IUPAC project was initiated to publish a Symposium-in-Print on Green Chemistry, and to compile a collection of expert reviews on aspects of the topic, underpinned by an introductory account of the evolution

