

# CS Publications News

## ACS SYMPOSIA

### No. 49 Textile and Paper Chemistry and Technology

Edited by Jett C. Arthur, Jr.

Cellulose is our most abundant raw material, and since it is constantly renewable, it will assume a new importance in the future as oil supplies decrease and their cost sky-rockets. The renewed interest has spurred an increased research effort, the results of which are presented in this volume.

Specific topics covered include: viscose rayon production, pore structure of cellulose, liquid ammonia treatment, fibre-forming polymers, controlled vapour release devices, man-made fibres, non-fuming spin finishes, difluoro-chloropyrimidine dye, shrink resist polymers for wool, paper industry, pulp mills, caprolactam recovery, and radial tyre yarn.

This volume contains much new information written by internationally recognized scientists from government, industry, and academia.

Clothbound 312pp 9½" × 8¾" 0 8412 0377 6 £15.50

### No. 51 Flavor Quality: Objective Measurement

Edited by Richard A. Scanlan

During the past 15 years, many advancements have been made in the area of objective measurement of flavour quality.

#### Brief contents

Objective Measurements of Flavour quality—General approaches, Problems, Pitfalls, and Accomplishments; Correlation of Odour Intensities and Vapour Pressures with Structural Properties of Odorants; Flavour Chemical Mixtures—A Psychophysical Analysis; Structural and Mechanical Indicators of Flavour Quality; Relations between Sensory and Objective Measurements for Quality Evaluation of Green Beans; Measurement of Flavour Quality in Apples, Apple Juices, and Fermented Ciders; Objective Measurements of the Flavour Quality of Beer; Use of Regression Models in Objective Flavour Evaluation of Processed Orange Juice During Four Seasons.

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### No. 55 Industrial and Laboratory Alkylations

Edited by Lyle F. Albright and Arthur R. Goldsby

In this volume an eminent group of alkylation experts describe their research on the chemistry and mechanism involved in engineering and industrial problems.

The book consists of 27 papers—all relating in some way to alkylation. Slightly over half the papers deal with the alkylation of isobutane with light olefins to produce high quality gasoline blending hydrocarbons. New information is presented for isobutane alkylation relative to the chemistry and mechanism, process improvements, recovery of acid catalysts, and status of commercial units. Papers are also presented for the alkylation of aromatics, heterocyclics, coal, and other hydrocarbons. Alkylations using transition metal catalysts, strong acids, free radicals, and bases are also reported.

Clothbound 460pp 9½" × 6¾" 0 8412 0385 7 £19.00

### No. 58 Solvent Spun Rayon Modified Cellulose Fibers and Derivatives

Edited by Albin F. Turbak

This volume discusses cellulose in three main areas.

The first section, on solvent spun rayon, deals with diverse efforts to develop a totally recoverable and recyclable solvent spinning system to overcome viscose process deficiencies.

The second section on cellulose ethers and esters covers first-release information on Cytrel synthetic tobacco as well as added technology on cellulose acetate and amic acid esters.

The final section on modified celluloses includes details on the new Viloft hollow rayon fibres, lignin-modified rayon, microscopic techniques for novovens, drying of super absorbent fibres, ultrasonic fibre treatment, and improved cellulose flame retardants.

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### No. 59 Ring-Opening Polymerization

Edited by Takeo Saegusa and Eric Goethals

The products of ring-opening polymerization reactions often exhibit properties that are very useful to and important in industrial applications. Since monomers suitable for ring-opening polymerizations have a great variety of functional groups and ring sizes, the patterns of polymerization reactions and the properties of the resulting polymers vary greatly.

This volume, based on an international symposium, contains new developments on the polymerizations of cyclic amines, sulphides, oxides (cyclic ethers), formals, esters (lactones), amides (lactams), and olefins. The polymerization of carbon bicyclic compounds and cyclic zwitterion monomers as well as spontaneous alternating copolymerization involving heterocyclic monomers is also discussed.

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### No. 61 Computer Assisted Organic Synthesis

Edited by W. T. Wipke and W. Jeffrey Howe

Chemists and computer scientists have been stimulated by the application of digital computers to the design and study of organic syntheses.

Ten papers describe the state of the art of computer synthesis as viewed by some major research groups. Topics cover logic and heuristics, deductive solution of chemical problems, formal languages from a chemist's view, reaction path synthesis, simulation and evaluation of chemical synthesis, rapid generation of organic synthesis programs, artificial intelligence systems, computer-assisted synthetic analysis in drug research and computer-assisted structure elucidation. LHASA, CICLOPS, EROS, SYNCHEM, MATCHEM, CHEMONICS, REACT, SECS, and CONGEN programs are also discussed.

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### No. 41 Sucrochemistry

Edited by John L. Hickson

This book documents the evolution of the fundamental considerations of the chemistry of sucrose, discusses some industrial applications, and explores the role of sugar as a renewable resource in present and future technologies.

The first section of the book delineates the concepts and evolution of the intriguing, fundamental chemistry of the sucrose molecule. The next three sections illustrate some of the industrial applications of sucrochemistry: surfactants, surface coatings, urethane plastics, and fermentation processes. The final section discusses the business and economic forecasts for sucrochemistry.

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### No. 42 Synthetic Pyrethroids

Edited by Michael Elliott

The twenty-one contributions to this book are devoted to the recently discovered, more stable synthetic pyrethroids, a new class of insecticides which promises to supplement and possibly replace some of the earlier organochlorine, organophosphate, and carbamate compounds on which insect control currently depends. Since 1972, potent new compounds, more stable on leaf surfaces than some of the organophosphates and carbamates but still degraded in soil and in mammals, have been developed. Their favourable properties fit them for many uses in pest control.

The papers in this book deal with all aspects of the new compounds, including their history, insecticidal activity, structure-activity relationships, synthesis, mode of action, metabolism in mammals and plants, stability in light and soil, and analysis.

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### No. 44 Drug Metabolism Concepts

Edited by Donald M. Jerina

The eight chapters in this volume present the procedures and results of research on microsomal enzymes and their metabolic pathways. The first half of the book discusses cytochromes P-450—specifically its role in oxygen activation for drug metabolism, synthetic models for reaction stages, and isolation and resolution of multiple forms. Other chapters cover methods for studying enzyme multiplicity activation and detoxification of benzo[a]pyrene, reactions of 9,10-epoxides of (+) and (-)-*trans*-7,8-dihydroxy-7,8-dihydrobenzo[a]pyrene with polyguanylic acid, and chemical-induced tissue injury.

Scientists working in medicinal chemistry, pharmacology, biochemistry and toxicology will find important information in this volume written by authors representing a broad spectrum of research in drug metabolism.

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### No. 45 Extracellular Microbial Polysaccharides

Edited by Paul A. Sandford and Allen Laskin

This volume focuses on the production and properties of extracellular microbial polysaccharides that are currently being used by industry or that have potentially useful industrial properties. Special emphasis is placed on new areas of research that would improve or stimulate industrial production and use of this valuable class of water-soluble hydrocolloids.

Specific topics covered in the 22 chapters include: culture maintenance and productivity, alginic acid, gum from acid whey, exopolysaccharide synthesis, formation by *Methylomonas*, solution properties, molecular conformation and interactions, spectroscopy, polyelectrolytes, rheology of gum solutions, synergistic gels, bacterial heteropolysaccharides, xanthan properties and products, applications in food and enhanced oil recovery, curdlan, and  $\alpha$ -D-glucans.

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### No. 47 Enzymes in Food and Beverage Processing

Edited by Robert L. Ory and Allen J. St. Angelo

Great advances in enzyme chemistry over the past few decades have enabled food scientists to select specific enzymes to achieve a desired end product without the guesswork inherent in previously used methods.

This book discusses work on many different types of food and beverages and centres on the application of enzymes which affect their flavour, texture, nutritional value, and general quality.

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### No. 48 Cellulose Chemistry and Technology

Edited by Jett C. Arthur, Jr.

Not only is cellulose the most abundant organic material on earth and relatively inexpensive, but in many cases the energy required for its processing into final products is considerably less than that needed for competing materials. Recent increases in the prices of petroleum and natural gas have focused attention on the potential uses of cellulose for chemicals and energy. However, greater reliance on cellulose will depend on technological improvements and yields of cellulose processing and on the properties of the cellulosic materials themselves.

The focus of this book is on the structure, properties, and reactions of cellulose. Specific topics include X-ray diffraction, infrared and Raman spectroscopy studies, microbial polysaccharides, pyrolysis, grafting, secondary lignification, delignification, teichoic acids, and non-aqueous solvents.

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