Infrared And Raman Characteristic Group Frequencies Tables And Charts

This book provides a state-of-the-art review of a major recent technology which has now reached a level of maturity. The editors have pioneered the development and application of these techniques and technologies, and the chapter authors are leading practitioners in their subject areas. The volume encompasses methods and instrumentation across a range of applications. It is directed at researchers and professionals in vibrational spectroscopy, analytical chemistry, materials science, biomedicine, food science and combinatorial chemistry.

Handbook of Infrared and Raman Spectra of Inorganic Compounds and Organic Salts

Chemistry/Forensic Science Forensic chemistry is a subdiscipline of forensic science, its principles guide the analyses performed in modern forensic laboratories. Forensic chemistry's roots lie in medico-legal investigation, toxicology, and microscopy and have since led the development of modern forensic analytic techniques and practices for use in a variety of applications. Introduction to Forensic Chemistry is the perfect balance of testing methods and application. Unlike other competing books on the market, coverage is neither too simplistic, nor overly advanced making the book ideal for use in both undergraduate and graduate courses. This book introduces chemical tests, spectroscopy, advanced spectroscopy, and chromatography to students. The second half of the book addresses applications and methods to analyze and interpret controlled substances, trace evidence, questioned documents, explosives, environmental contaminants, toxins, and other topics. The book looks at innovations in the field over time including the latest development of new discernible chemical reactions, instrumental tools, methods, and more. Key features: Nearly 300 full-color figures illustrating key concepts and over 20 case studies Addresses all the essential topics without extraneous or overly advanced coverage Includes full pedagogy of chapter objectives, key terms, lab problems, end of chapter questions, and additional readings to emphasize key learning points Includes chemical structures and useful spectra as examples Fulfills the forensic chemistry course requirement in FEPAC-accredited programs Includes a chapter on Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) materials Comprehensive and accessible, without being overly technical, Introduction to Forensic Chemistry will be a welcome addition to the field and an ideal text designed for both the student user and professor in mind. Course ancillaries including an Instructor's Manual with Test Bank and chapter PowerPoint® lecture slides are available with qualified course adoption.

Confocal Raman Microscopy is a relatively new technique that allows chemical imaging without specific sample preparation. By integrating a sensitive Raman spectrometer within a state-of-the-art microscope, Raman microscopy with a spatial resolution down to 200nm laterally and 500nm vertically can be achieved using visible light excitation. Recent developments in detector and computer technology as well as optimized instrument design have reduced integration times of Raman spectra by orders of magnitude, so that complete images consisting of tens of thousands of Raman spectra can be acquired in seconds or minutes rather than hours, which used to be standard just one decade ago. The purpose of this book is to provide the reader a comprehensive overview of the rapidly developing field of Confocal Raman Microscopy and its applications. This first volume in a series is intended to provide up-to-date information on specific topics in oils and fats. The book will be especially valuable for any practising scientist or technologist who deals in any way with oils and fats whether from a nutritional, surfactant, cosmetic or analytical chemistry point of view. In addition there is sufficient depth in most of the articles to catch the imagination of many more senior managers in the industry. The oils and fats industry is closely aligned with the food industry and it is no surprise to find that five of the chapters (1, 2, 3, 6 and 7) are written from a food perspective. The current arguments about diets and their fat content are well developed in Dr Ensor's chapter on meat lipids. He has presented a very balanced picture explaining that there are many reports which contradict the fashionable 'saturated fatty acids are bad' theory. This chapter will do much to illustrate the dietary implications of meat lipids and should stimulate discussion and further research. Bringing several disparate aspects of food science and analysis together in one place, Applications of Vibrational Spectroscopy to Food Science provides a comprehensive, state-of-the-art text presenting the fundamentals of the methodology, as well as underlying current areas of research in food science analysis. All of the major spectroscopic techniques are also covered – showing how each one can be used beneficially and in a complementary approach for certain applications. Case studies illustrate the many applications in vibrational spectroscopy to the analysis of foodstuffs. Hydrocarbon Fluid Inclusions in Petroliferous Basins trains readers to detect Hydrocarbon Fluid Inclusions (HCFIs) in sedimentary rocks, particularly the wafer preparation techniques to visualize HCFIs, its distinction from aqueous inclusions, petrographic approaches to HCFIs, microthermometric observations on HCFIs, fluorescence emission spectra and Raman spectra of HCFIs, and their interpretations for the petroleum industry. The book features case studies from the Mumbai and Kerala Konkan Basins of the Western Offshore of India - two representative basins where new, non-destructive, fluid inclusion techniques were tested. This book is essential reading for students of petroleum geology and those working in exploration in the oil and gas industry. Helps readers to identify Hydrocarbon Fluid Inclusions (HCFIs) in sedimentary basins Covers how to determine the oil window, API gravity and chemical constituents in HCFIs Includes case studies on key offshore basins This text offers an open-learning approach to Raman spectroscopy providing detail on instrumentation, applications and discussions questions throughout the book. It provides a valuable guide to assist with teaching Raman spectroscopy which is gaining attention in (analytical) chemistry, and as a consequence, teaching programs have followed. Today, education in Raman spectroscopy is often limited to theoretical aspects (e.g. selection rules), but practical aspects are usually disregarded. With these course notes, the author hopes to fill this gap and include information about Raman instrumentation and how it is interpreted. Provides a user-friendly text that tackles the theoretical background, and offers everyday tips for common practice Raman instrumentation and practical aspects, which are sometimes overlooked, are covered. Appropriate for students, and includes summaries, text boxes, illustrating the ideas with examples from research literature or providing background information or links with other courses. Written with an open-learning approach, this book will be ideal for use as a self-study guide or as the basis of a taught course with discussion and self-assessment questions throughout the text. Includes a comprehensive bibliography to guide the reader to more specialized texts and sources.

This book concentrates on the luminescence and structural properties of the new generation of europium and terbium activated phosphors, associated phenomena, and related topics, from basic principles to the most recent discoveries. It summarizes the present state of the art in this rapidly growing field. The authors describe recent developments in the areas of rare earth doped phosphors and of some new materials or well-known materials with improved properties that open up new possibilities. The areas of focus include X-ray phosphors, phosphors for light-emitting devices, emissive displays, and fluorescent lamps. The book comprises theoretical and experimental analysis of various properties of phosphors, research methods and preparation techniques, and some promising applications. The third edition of this highly successful manual is not only a revised text but has been extended to meet the interpretive needs of Raman users as well as those working in the IR region. The result is a uniquely practical, comprehensive and detailed source for spectral interpretation. Combining in one volume, the correlation charts and tables for spectral...
interpretation for these two complementary techniques, this book will be of great benefit to those using or considering either technique. In addition to the new Raman coverage the new edition offers: * new section on macromolecules including synthetic polymers and biomolecules; * expansion of the section on NIR (near infrared region) to reflect recent growth in this area; * extended chapter on inorganic compounds including minerals and glasses; * redrawn and updated charts plus a number of new charts covering data new to this edition. This new edition will be invaluable in every industrial, university, government and hospital laboratory where infrared (FT-IR) and Raman spectral data need to be analysed.

This third edition of the Encyclopedia of Spectroscopy and Spectrometry provides authoritative and comprehensive coverage of all aspects of spectroscopy and closely related subjects that use the same fundamental principles, including mass spectrometry, imaging techniques and applications. It includes the history, theoretical background, details of instrumentation and technology, and current applications of the key areas of spectroscopy. The new edition will include over 80 new articles across the field. These will complement those from the previous edition, which have been brought up-to-date to reflect the latest trends in the field. Coverage in the third edition includes: Atomic spectroscopy Electronic spectroscopy Fundamentals in spectroscopy High-Energy spectroscopy Magnetic resonance Mass spectrometry Spatially-resolved spectroscopic analysis Vibrational, rotational and Raman spectroscopies The new edition is aimed at professional scientists seeking to familiarize themselves with particular topics quickly and easily. This major reference work continues to be clear and accessible and focus on the fundamental principles, techniques and applications of spectroscopy and spectrometry. Incorporates more than 150 color figures, 5,000 references, and 300 articles for a thorough examination of the field Highlights new research and promotes innovation in applied areas ranging from food science and forensics to biomedicine and health Presents a one-stop resource for quick access to answers and an in-depth examination of topics in the spectroscopy and spectrometry arenas

An Overview of a Rapidly Expanding Area in Chemistry Exploring the future in chemical analysis research, Ionic Liquids in Chemical Analysis focuses on materials that promise entirely new ways to perform solution chemistry. It provides a broad overview of the applications of ionic liquids in various areas of analytical chemistry, in Protein research is a frontier field in science. Proteins are widely distributed in plants and animals and are the principal constituents of the protoplasm of all cells, and consist essentially of combinations of α-amino acids in peptide linkages. Twenty different amino acids are commonly found in proteins, and serve as enzymes, structural elements, hormones, immunoglobulins, etc., and are involved throughout the body, and in photosynthesis. This book gathers new leading-edge research from throughout the world in this exciting and exploding field of research.

Infrared Spectra of Inorganic Compounds is a comprehensive compendium of reference infrared spectra and empirical spectra-structure correlations of inorganic compounds in the solid phase. The majority of these compounds are (powdered) crystalline solids in which the crystallographic unit cell may contain several polyatomic ions or molecules. This book begins with an overview of the use of infrared spectroscopy in the identification of inorganic compounds. The experimental procedures for scanning the mid-infrared spectra are then described. The spectra are arranged to bring together compounds containing similar anions, in order to facilitate recognition of characteristic group frequencies. The arrangement is based on the position in the periodic table of the central atom in the anion. Two indices are provided, the first containing compounds as they appear in the book in numerical sequence, and the second arranged alphabetically by anion. Characteristic infrared frequencies and band intensities of the different anions are summarized, along with frequency assignments for the fundamental vibrations of complex anions taken from the literature. This monograph should be useful to physicists and inorganic chemists. With contributions from experts and pioneers, this set provides readers with the tools they need to answer the need for sustainable development faced by the industry. The six volumes constitute a shift from the traditional, mostly theoretical focus of most resources to the practical application of advances in research and development. With con

This book is a well-established guide to the interpretation of the mass, ultraviolet, infrared and nuclear magnetic resonance spectra of organic compounds. It is designed for students of organic chemistry taking a course in the application of these techniques to structure determination. The text also remains useful as a source of data for organic chemists to keep on their desks throughout their career. In the seventh edition, substantial portions of the text have been revised reflecting knowledge gained during the author's teaching experience over the last seven years. The chapter on NMR has been divided into two separate chapters covering the 1D and 2D experiments. The discussion is also expanded to include accounts of the physics at a relatively simple level, following the development of the magnetization vectors as each pulse sequence is introduced. The emphasis on the uses of NMR spectroscopy in structure determination is retained. Worked examples and problem sets are included on a chapter level to allow students to practise their skills by determining the chemical structures of unknown compounds.

Using clear and practical examples, Polymorphism of Pharmaceutical Solids, Second Edition presents a comprehensive examination of polymorphic behavior in pharmaceutical development that is ideal for pharmaceutical development scientists and graduate students in pharmaceutical science. This edition focuses on pharmaceutical aspects of polymorphism a
This book reviews a variety of methods in computational chemistry and their applications in different fields of current research. Ab initio methods and regression analyses are discussed with special focus on their application to investigate chemical structures as for example dyes or drug compounds. Further topics are the use of computational methods in the modeling of spectroscopic data or to study reaction mechanisms.

Second edition of the guide to the modern techniques that demonstrate the potential of Raman spectroscopy Completely revised and updated, the second edition of Modern Raman Spectroscopy presents the information needed for clear understanding and application of the technique of Raman Spectroscopy in a range of areas such as pharmaceuticals, forensics, and biology. The authors—noted experts on the topic—reveal how to make full use of the critical information presented and include a wealth of examples of the pitfalls that can be encountered. The text opens with a description of the basic theory to assist readers in making a practical interpretation of Raman Spectra. Chapters include the main equations that are used in order to highlight the theory's meaning and relevance while avoiding a full mathematical treatment. Modern Raman Spectroscopy provides a firm grounding, combined with a variety of references, from which to approach a more comprehensive study of specific aspects of Raman Spectroscopy. This new edition: Includes instrumentation sections that now contain Spatially Offset Raman scattering and transmission Raman scattering Offers an updated SERS chapter that presents recent examples and Tip enhanced Raman scattering Contains updated information with an emphasis on pharmaceutical, forensic, and biological applications Introduces modern techniques in the imaging and mapping of biological samples and more advanced methods which are becoming easier to use Written for users of Raman Spectroscopy in industry, including non-analysts, researchers, and academics, the second edition of Modern Raman Spectroscopy clearly demonstrates the potential of using Raman Spectroscopy for a wide range of applications.

This richly illustrated hands-on guide is designed for researchers, teachers and practitioners. The huge selection of examples taken from science, basic teaching of physics, practical applications in industry and a variety of other disciplines spanning the range from medicine to volcano research allows readers to pick those that come closest to their own individual task at hand. Following a look at the fundamentals of IR thermal imaging, properties of the imaging systems, as well as basic and advanced methods, the book goes on to discuss IR imaging applications in teaching, research and industry. Specific examples include thermography of buildings, microsystems and the rather new field of IR imaging of gases. Impartially written by expert authors in the field from a renowned applied science institution, who are in the unique position of having both experience in public and private research and in teaching, this comprehensive book can be used for teaching beginners in the field as well as providing further education to specialized staff, students and researchers.

Provides an introduction to those needing to use infrared spectroscopy for the first time, explaining the fundamental aspects of this technique, how to obtain a spectrum and how to analyse infrared data covering a wide range of applications. Includes instrumental and sampling techniques Covers biological and industrial applications Includes suitable questions and problems in each chapter to assist in the analysis and interpretation of representative infrared spectra Part of the ANTS (Analytical Techniques in the Sciences) Series.

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John Wiley & Sons

The concept of improving the use of electromagnetic energy to achieve a variety of qualitative and quantitative spectroscopic measurements on solid and liquid materials has been proliferating at a rapid rate. The use of such technologies to measure chemical composition, appearance, for classification, and to achieve detailed understanding of material interactions has prompted a dramatic expansion in the use and development of spectroscopic techniques over a variety of academic and commercial fields. The Concise Handbook of Analytical Spectroscopy is integrated into 5 volumes, each covering the theory, instrumentation, sampling methods, experimental design, and data analysis techniques, as well as essential reference tables, figures, and spectra for each spectroscopic region. The detailed practical aspects of applying spectroscopic tools for many of the most exciting and current applications are covered. Featured applications include: medical, biomedical, optical, physics, common commercial analysis methods, spectroscopic quantitative and qualitative techniques, and advanced methods. This multi-volume handbook is designed specifically as a reference tool for students, commercial development and quality scientists, and researchers or technologists in a variety of measurement endeavours. Number of Illustrations and Tables: 393 b/w ilus, 304 colour ilus, 413 tables. Related Link(s)

An all-inclusive guide on the analytical methods of Raman, infrared, and near-infrared chemical imaging An underutilized technology, chemical imaging through Raman, infrared (IR), and near-infrared (NIR) is beginning to gain recognition for its non-destructive method of permitting visualization of spatially resolved chemical information. This type of analysis is triggering a groundswell of demand as manufactured materials become more complex and the need for greater scrutiny and less damaging research practices is at a premium. Concentrating on the applications of chemical imaging, this book presents a thorough background on the theory, software, and hardware employed in this analytical technique. With full examination of this rapidly growing field, this book: Combines many different aspects and applications into one comprehensive volume Discusses how chemical imaging techniques have expanded greatly in terms of instruments and applications, but have lagged in general awareness among scientists and industries that would benefit the most from them Describes chemical imaging uses in key areas—biomedical, pharmaceutical, food, and polymer research Has chapters that outline hardware and instrumentation for the different methods of chemical imaging Encapsulating analytic methods without complicating the subject matter, this book shows where chemical imaging has been successfully applied, inspiring researchers to cultivate the exciting capabilities rooted within this powerful and multifaceted technology.

This necessary desk reference for every practicing spectroscopist represents the first definitive book written specifically to integrate knowledge about group frequencies in infrared as well as Raman spectra. In the spirit of previous classics developed by Bellamy and others, this volume has expanded its scope and updated its coverage. In addition to detailing characteristic group frequencies of compounds from a comprehensive assortment of categories, the book includes a collection of spectra and a literature search conducted to verify existing correlations and to determine ways to enhance correlations between vibrational frequencies and molecular structure. Particular attention has been given to the correlation between Raman characteristic frequencies and molecular structure. Key Features * Constitutes a necessary reference for every practicing vibrational
The use of analytical sciences in the discovery, development and manufacture of pharmaceuticals is wide-ranging. From the analysis of minute amounts of complex biological methods.

The handbook outlines features and experimental parameters for many essential procedures, and emphasizes the latest techniques and demonstrates state-of-the-art strategies, methods, and techniques for the analytical dehalogenation of modern detergents. It offers a comprehensive view of all aspects of the sampling, characterization, and analysis of microplastics.

This book provides knowledge of the basic theory, spectral analysis methods, chemometrics, instrumentation, and applications of near-infrared (NIR) spectroscopy—not as a handbook but rather as a sourcebook of NIR spectroscopy. Thus, some emphasis is placed on the description of basic knowledge that is important in learning and using NIR spectroscopy. The book also deals with applications for a variety of research fields that are very useful for a wide range of readers from graduate students to scientists and engineers in both academia and industry. For readers who are novices in NIR spectroscopy, this book provides a good introduction, and for those who already are familiar with the field it affords an excellent means of strengthening their knowledge about NIR spectroscopy and keeping abreast of recent developments.

Industrial Analysis with Vibrational Spectroscopy is an integrated work which emphasises the synergy and complementary nature of the techniques of infrared and Raman spectroscopy in industrial laboratories. The book is written in a pragmatic and straightforward manner and is illustrated throughout with examples of real-world, everyday problems and applications. It provides a developed, realistic insight into industrial analysis with vibrational spectroscopy for both undergraduate and academic researcher, while additionally providing a straightforward working tool of value to the industrial laboratory worker.

Now in its third edition, this classic text covers many aspects of infrared and Raman spectroscopy that are critical to the chemist doing structural or compositional analysis. This work includes practical and theoretical approaches to spectral interpretation as well as a discussion of experimental techniques. Emphasis is given to group frequencies, which are studied in detailed discussions, extensive tables, and over 600 carefully chosen and interpreted spectral examples. Also featured is a unique treatment of group frequencies that stresses their mechanical origin. This qualitative approach to vibrational analysis helps to simplify spectral interpretation. Additional topics include basic instrumental components and sampling techniques, quantitative analysis, Raman polarization data, infrared gas contours, and polarized IR studies, among others. Focuses on group frequency correlations and how to use them in spectral interpretation Revised and updated by a pioneer in the field, Norman Colthup, who for thirty years has served as an expert lecturer for the Fisk Infrared Institute Explores new group frequency studies in aromatics, alkanes and olefins, among others Includes over 150 fully interpreted, high quality IR and Raman reference spectra Contains fifty-four unknown IR and Raman spectra, with a corresponding answer key

Characterization and Analysis of Microplastics, Volume 75, aims to fulfill the gap on the existence of published analytical methodologies for the identification and quantification of microplastics. This overview includes the following main topics: introduction to the fate and behavior of microplastics in the environment, assessment of sampling techniques and sample handling, morphological, physical, and chemical characterization of microplastics, and the role of laboratory experiments in the validation of field data. The characterization and analysis of microplastics is a hot topic considering the current need for reliable data on concentrations of microplastics in environmental compartments. This book presents a comprehensive overview of the analytical techniques and future perspectives of analytical methodologies in the field. Concise, comprehensive coverage of analytical techniques and applications Clear diagrams adequately support important topics Includes real examples that illustrate applications of the analytical techniques on the sampling, characterization, and analysis of microplastics

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analytical aspects of drug development and manufacture, focusing on the analysis of the active ingredient or drug substance. It provides those joining the industry or other areas of pharmaceutical research with a source of reference to a broad range of techniques and their applications, allowing them to choose the most appropriate analytical technique for a particular purpose. The volume is directed at analytical chemists, industrial pharmacists, organic chemists, pharmaceutical chemists and biochemists.

This book teaches the analyst why it is advantageous to obtain vibrational data under different physical phases. Molecular vibrations are affected by change in physical phase, and knowledge of how certain molecular vibrations are affected by change in the chemical environment improves the analyst's ability to solve complex chemical problems. This book is invaluable for students and scientists engaged in analytical and organic chemistry, since application of IR and Raman spectroscopy is essential in identifying and verifying molecular structure. This reference provides analysts with information that enables them to acquire the maximum amount of information when sampling molecular vibrations via IR and Raman spectroscopy. Key Features: * Explains why it is advantageous to obtain vibrational data under different physical phases * Compiles many vibrational studies into a single compendium * Lists group frequencies in different physical phases * Reveals that some group frequencies are more affected than others by changes in the physical phase * Demonstrates that in-phase and out-of-phase vibrations of the same functional group are not equally affected * Describes how solute-solvent complexes differ with changes in the solvent system * Shows that the amount of Fermi resonance between a fundamental vibration and a combination or overtone is altered with change of physical phase * Written by an internationally recognized expert

Process Analytical Technology explores the concepts of PAT and its application in the chemical and pharmaceutical industry from the point of view of the analytical chemist. In this new edition all of the original chapters have been updated and revised, and new chapters covering the important topics of sampling, NMR, fluorescence, and acoustic chemometrics have been added. Coverage includes: Implementation of Process Analytical Technologies UV-Visible Spectroscopy for On-line Analysis Infrared Spectroscopy for Process Analytical Applications Process Raman Spectroscopy Process NMR Spectroscopy Technology and On-line Applications Fluorescent Sensing and Process Analytical Applications Chemometrics in Process Analytical Technology (PAT) On-Line PAT Applications of Spectroscopy in the Pharmaceutical Industry Future Trends for PAT for Increased Process Understanding and Growing Applications in Biomanufacturing NIR Chemical Imaging This volume is an important starting point for anyone wanting to implement PAT and is intended not only to assist a newcomer to the field but also to provide up-to-date information for those who practice process analytical chemistry and PAT. It is relevant for chemists, chemical and process engineers, and analytical chemists working on process development, scale-up and production in the pharmaceutical, fine and specialty chemicals industries, as well as for academic chemistry, chemical engineering, chemometrics and pharmaceutical science research groups focussing on PAT. Review from the First Edition “The book provides an excellent first port of call for anyone seeking material and discussions to understand the area better. It deserves to be found in every library that serves those who are active in the field of Process Analytical Technology.”—Current Engineering Practice

Interpretation of IR and Raman Spectra provides the fundamentals of interpreting IR and Raman spectra of complex molecules primarily organic molecules. Examinations of theory provide a basis for predicting functional group frequency location in new molecular structures. Generously enriched with sample exercises to help rapidly develop powerful interpretive skills. Includes appendices with fourteen bibliographies by subject area.

An in-depth text that explores the interface between analytical chemistry and trace evidence Analytical Techniques in Forensic Science is a comprehensive guide written in accessible terms that examines the interface between analytical chemistry and trace evidence in forensic science. With contributions from noted experts on the topic, the text features a detailed introduction analysis in forensic science and then subsequent chapters explore the laboratory techniques grouped by shared operating principles. For each technique, the authors incorporate specific theory, application to forensic analytics, interpretation, forensic specific developments, and illustrative case studies. Forensic techniques covered include UV-Vis and vibrational spectroscopy, mass spectrometry and gas and liquid chromatography. The applications reviewed include evidence types such as fibers, paint, drugs and explosives. The authors highlight data collection, subsequent analysis, what information has been obtained and what this means in the context of a case. The text shows how analytical chemistry and trace evidence can problem solve the nature of much of forensic analysis. This important text: Puts the focus on trace evidence and analytical science Contains case studies that illustrate theory in practice Includes contributions from experts on the topics of instrumentation, theory, and case examples Explores novel and future applications for analytical techniques Written for undergraduate and graduate students in forensic chemistry and forensic practitioners and researchers, Analytical Techniques in Forensic Science offers a text that bridges the gap between introductory textbooks and professional level literature. This second, thoroughly revised, updated and enlarged edition provides a straightforward introduction to spectroscopy, showing what it can do and how it does it, together with a clear, integrated and objective account of the wealth of information that may be derived from spectra. It also features new chapters on spectroscopy in nano-dimensions, nano-optics, and polymer analysis. Clearly structured into sixteen sections, it covers everything from spectroscopy in nanodimensions to medicinal applications, spanning a wide range of the electromagnetic spectrum and the physical processes involved, from nuclear phenomena to molecular rotation processes. In addition, data tables provide a comparison of different methods in a standardized form, allowing readers to save valuable time in the decision process by avoiding wrong turns, and also help in selecting the instrumentation and performing the experiments. These four volumes are a must-have companion for daily use in every lab.

A practical guide to polymer coatings that covers all aspects from materials to applications Polymer Coatings is a practical resource that offers an overview of the fundamentals to
the synthesis, characterization, deposition methods, and recent developments of polymer coatings. The text includes information about the different polymers and polymer networks in use, resins for solvent- and water-based coatings, and a variety of additives. It presents deposition methods that encompass frequently used mechanical and electrochemical approaches, in addition to the physical-chemical aspects of the coating process. The author covers the available characterization methods including spectroscopic, morphological, thermal and mechanical techniques. The comprehensive text also reviews developments in selected technology areas such as electrically conductive, anti-fouling, and self-replenishing coatings. The author includes insight into the present status of the research field, describes systems currently under investigation, and draws our attention to yet to be explored systems. This important text: • Offers a thorough overview of polymer coatings and their applications • Covers different classes of materials, deposition methods, coating processes, and ways of characterization • Contains a text that is designed to be accessible and helps to apply the acquired knowledge immediately • Includes information on selected areas of research with imminent application potential for functional coatings Written for chemists in industry, materials scientists, polymer chemists, and physical chemists, Polymer Coatings offers a text that contains the information needed to gain an understanding of the characterization and applications of polymer coatings.

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