Infrared Spectra Of Surface Compounds

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average, such page provides information on two minerals/compounds. Subsections correspond to different classes of compounds (silicates, phosphates, aromates, oxides etc.). About 290 new spectra have been obtained, and the remaining 1310 spectra are taken from most reliable literature sources (published over the last 60 years) and are redrawn in a unified style.

Surface and Interface Science, Volumes 1 and 2

Klaus Wandelt - 2012-04-16

Covering interface science from a novel surface science perspective, this unique handbook offers a comprehensive overview of this burgeoning field. Eight topical chapters cover all aspects of solid-gas INTERFACEs, solid-liquid INTERFACEs, and liquid-liquid INTERFACEs, the surface science in nano-technology, materials science and molecular electronics. With its broad scope and clear structure, it is ideal as a reference for scientists in the field, as well as an introduction for newcomers.

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Handbook of Infrared Spectroscopy of Ultrathin Films - Valeri P. Toloty - 2003-07-21

Because of the rapid increase in commercially available Fourier transform infrared spectrometers and computers over the past ten years, it has now become feasible to use FT-IR spectrometry for thin films at extremely high resolution. The interest in thin films has grown tremendously because applications in microelectronics, sensors, catalysis, and nanotechnology. The Handbook of Infrared Spectroscopy of Ultrathin Films provides a practical guide to experimental methods, up-to-date theory, and considerable reference data, critical for scientists who want to measure and interpret IR spectra of ultrathin films. This authoritative volume also offers: informationsteadily applicable IR spectroscopy to the analysis ofundertanding of thin and ultrathin films on flat and rough surfaces, on powders at solid-gas, solid-liquid, liquid-liquid, and solid-solid interfaces. Provides full discussion of theory underlying techniques Describes experimental methods in detail, including optimization for recording spectra and the interpretation of data. Provides detailed information on equipment, accessories, and software Provides IR spectroscopic data tables as appendices, including the first compilation of published data on longitudinal frequency-dependent ultrathin film approaches, such as Surface Enhanced IR spectroscopy (SEIR), time-resolved FTIR spectroscopy, high-resolution mapping spectroscopy and using synchrotron radiation

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Vibrational Spectroscopy of Molecules on Surfaces - Theodore E. Mader - 2013-11-11

The description of the vibrational methods for and end an ding chemical and physical phenomena on surfaces. At the present time, many papers may be applied to studies of molecular vibrations on surfaces. Some of these are used on high-area solids of technological importance (e.g., heterogeneous catalysis) while others are applied to simple-crystal substrates to gain better understanding under conditions closer to the real surface. The chapter deals particularly with techniques applied to surface science in nanotechnology, materials science, and molecular electronics. With its broad scope and clear structure, it is ideal as a reference for scientists in the field, as well as an introduction for newcomers.

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This volume provides a comprehensive and up-to-the-minute review of the techniques used to determine the nature and composition of surfaces. Originaly published as a special issue of the Perspectam journal Vacuum, it contains a carefully edited collection of chapters written by specialists in each of the techniques and includes original research. It is an indispensable guide for those who work with modern surface science instrumentation. The book covers surface science at all levels of complexity, from the atomic to the macroscopic. Surface science is an important area of study since the outermost surface layers play a crucial role in processes such as catalysis, adhesion, wear, and corrosion. New applications in metallography, thin films and surface coatings, the chemical and polymer industries, and microelectronics are also covered. This book is an essential guide for all those working in surface science and related fields, as well as for those who want to keep up to date with the latest developments.
This volume provides the reader with a comprehensive review of the techniques used to determine the nature and composition of surfaces. Originally published as Annual Reports, the series was expanded to include more topics over time, and by 1967 the whole spectrum of chemistry could no longer be contained within one volume. The series now covers a wide range of topics, from the chemistry of surfaces to the development of new materials and technologies. The series is a valuable resource for researchers in the field of surface science and related disciplines. It is recommended for graduate students and researchers who are interested in the latest developments in the field of surface and solid-state chemistry.

Physico-chemical Analysis of Industrial Catalysts - John Lynch - 2003


Porous Silica - X.K. Unger - 1979-01-01

Porous Silica

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Porous Silica

Advances in Catalysis - 1976-07-06

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Polymer Composite Materials - Interface Phenomena & Processes - Y. Ivanov - 2012-12-06

New technologies demand new materials. Polymer composites, with their wide range of possible fillers and polymers, open the way to an enormous range of materials with differing chemical, physical, and mechanical properties. The ultimate goal of polymer composite research is to formulate procedures that will lead to the design of composites with preset, i.e. specified, properties. Based on many years' experience in the field, the authors prepare the way towards just such a design procedure. The key element in the analysis and classification of the state of the filler-polymer interfaces from the point of view of their acid-base adsorption interactions. These interfacial phenomena play a pivotal role in determining overall properties of the composite: its rheological behaviour, its structural properties, catalytic effects in polymerization and polycondensation, and other technological characteristics. The book discusses and evaluates the extensive previous research scattered throughout the literature in Eastern Europe and the West, presents numerous experimental studies, and sets new benchmarks for the analysis of polymer composites. The book is required for researchers wanting to keep abreast of the progress in the burgeoning fields of polymer analysis and design.

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Infrared Spectroscopy - James M. Thompson - 2018-01-19

It is estimated that there are about 10 million organic chemicals known, and about 100,000 new organic compounds are produced each year. Some of these new chemicals are made in the laboratory and some are isolated from natural products. The structural determination of these compounds is the job of the chemist. There are several instrumental techniques used to determine the structures of organic compounds. These include NMR, UV/visible, infrared spectroscopy, mass spectrometry, and X-ray crystallography. Of all the instrumental techniques listed, infrared spectroscopy and mass spectrometry are the two most popular techniques, mainly because they tend to be less expensive and give us the most structural information. This book is an introductory text designed to acquaint undergraduate and graduate students with the basic theory and interpretative techniques of infrared spectroscopy. Much of the material in this text has been used over a period of several years for teaching courses in materials characterization and chemical analysis. It provides the infrared spectra of the major classes of organic compounds and correlates the infrared bands (bond vibrations) of each spectrum with the structural features of the compound it represents. This has been done for hydrocarbons, organic acids, ketones, aldehydes, esters, anhydrides, phenols, amines, and amides. The text discusses the origin of the fragments, techniques, innovations, and applications in infrared spectroscopy. It is interspersed with many illustrations, examples, an adequate but not overwhelming bibliography, and problems for students. It will serve as a lecture text for a one-semester course in infrared spectroscopy or can be used to teach the infrared spectroscopy portion of a broader course in material characterization and chemical analysis.

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Zeolite Microporous Solids: Synthesis, Structure, and Reactivity - E.G. Derosne - 2012-12-06

Intensive research on zeolites, during the past thirty years, has resulted in a deep understanding of their chemistry and in a true zeolite science, including synthesis, for selective sorption, separation, and catalysis. In 1983, a NATO-Advanced Study Institute was organized in Alkabrede (portugal) to establish the State-of-the-Art in Zeolite Science and Technology and to contribute to a better understanding of the structural properties of zeolites, the configurational constraints they may exert, and their effects in adsorption, diffusion, and catalysis. Since then, zeolite science has witnessed an almost exponential growth in published papers and patents, dealing with both fundamentals issues and original applications. The proposal of new procedures for zeolite synthesis, the development of novel and sophisticated physical techniques for zeolite characterization, the discovery of new zeolithic and related microporous materials, progresses in quantum chemistry and molecular modeling of zeolites, and the application of zeolites as catalysts for organic reactions have prompted increasing interest among the scientific community. An important and harmonious interaction between various domains of Physics, Chemistry, and Engineering resulted therefrom.

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