Stachs Textbook Of Coal Petrology

The book will be an everlasting and invaluable reference for, academia, industry and planners specialized in georesouce and for those who need updated information and current research in the field. The book will also be equally useful for advance level students and research scholars throughout the world.

Coal is an important fossil fuel resource for many nations due to its large remaining resources, relatively low production and processing cost and potential high energy intensity. Certain issues surround its utilisation, however, including emissions of pollutants and growing concern about climate change. The coal handbook: Towards cleaner production Volume 1 reviews the coal production supply chain from analysis to extraction and distribution. Part one explores coal characterisation and introduces the industrial use of coal as well as coal formation, petrography, reserves, sampling and analysis. Part two moves on to review coal extraction and preparation. Chapters highlight advances in coal mining technology, underground coal gas extraction, coal sizing, comminution and cleaning, and solid-liquid separation technologies for coal. Further chapters focus on economic factors affecting coal preparation, post-treatment of coal, coal tailings treatment, and the optimisation, simulation and control of coal preparation plants. Finally, part three considers aspects of the coal supply chain including the management approach and individual functions such as coal blending and homogenisation, transportation and handling along the entire supply chain. With its distinguished editor and international team of expert contributors, The coal handbook Volumes 1 and 2 is a comprehensive and invaluable resource for professionals in the coal mining, preparation, and utilisation industry, those in the power sector, including plant operators and engineers, and researchers and academics interested in this field. Reviews the coal production supply chain from analysis to extraction and distribution Explores coal characterisation, formation, petrography, reserves, sampling and analysis Examines coal extraction and preparation and highlights advances in coal mining technology, underground coal gas extraction, coal sizing, comminution and cleaning, and solid-liquid separation technologies

The book on deposition, diagenesis, and weathering of organic matter-rich sediments is a summary of seven years of research work of the author at the Institute of Petroleum and Organic Geochemistry in J}lich. It contains a comparision of various depositional environments (lakes, deltas, seas)with respect to organic matter characteristics, a special chapter on the deposition of the Posidonia shale, a summary of organic matter maturation and related petroleum generation, and a chapter on the use of maturationparameters as calibration tools for numerical modelling of temperature histories of sedimentary basins. Also, microscopic effects of petroleum generation and oil to gas cracking are treated. The final chapters deal withcoals as source rocks for oil and gas and with the effects of weatheringon sediments which are rich in organic matter.

A sound understanding of the global carbon cycle requires an appreciation of the various physico-chemical and biological processes that determine the production, distribution, deposition and diagenesis of organic matter in the natural environment. This book is a comprehensive interdisciplinary synthesis of this information, coupled with an organic facies approach based on data from both microscopy and bulk organic geochemistry.

Coal and Peat Fires: A Global Perspective is a compelling collection of research conducted by scientists and engineers around the world. The first of four volumes in the collection, Coal – Geology and Combustion, features chapters that discuss the origin of coal and coal fires; mining and use of coal; combustion and coal petrology; environmental and health impacts of coal fires; combustion by-products; geochemical, geophysical, and engineering methodologies for studying coal fires; the control, extinguishment, and political implications of coal fires; and much more. Integrates pioneering coal-fires research, with topical coverage of remote sensing,

policymaking, and more Serves as an essential guide to the socio-economic and geo-environmental impacts of coal fires

Oil shales are broadly dermed as petroleum source rocks containing sufficiently high contents of organic matter (above ca 10-15 wt. %) to make utilisation a possibility. Like coal, the world's reserves of oil shales are vast being many times larger than those proven for crude oil. Indeed, some of the largest deposits occur in the USA and Europe where Estonia and Turkey have large reserves. The first recorded interest in oil shale retorting was an English patent in 1694 (Eele, Hancock and Porter, No. 330) which refers to distilling noyle from some kind of stone". The oil shale retorting industry dates back to the middle of the last century, notably Scotland, Estonia, France and Sweden in Europe. Indeed, my own Department at the University of Strathclyde has a historical link with James "Paraffin" Young, the founder of the Scottish oil shale industry who endowed a chair in Applied Chemistry. The growth of the oil industry saw the demise of the oil shale industry in most countries with the notable exception of Estonia, where kukersite has continued to be used for power generation and retorting. However, oil shale utilisation has attracted renewed attention since the early 1970s as a source of transport fuels and chemical feedstocks due to the the long term uncertainties over crude oil supplies.

The third edition of the Encyclopedia of Analytical Science is a definitive collection of articles covering the latest technologies in application areas such as medicine, environmental science, food science and geology. Meticulously organized, clearly written and fully interdisciplinary, the Encyclopedia of Analytical Science provides foundational knowledge across the scope of modern analytical chemistry, linking fundamental topics with the latest methodologies. Articles will cover three broad areas: analytical techniques (e.g., mass spectrometry, liquid chromatography, atomic spectrometry); areas of application (e.g., forensic, environmental and clinical); and analytes (e.g., arsenic, nucleic acids and polycyclic aromatic hydrocarbons), providing a one-stop resource for analytical scientists. Offers readers a one-stop resource with access to information across the entire scope of modern analytical science Presents articles split into three broad areas: analytical techniques, areas of application and and analytes, creating an ideal resource for students, researchers and professionals Provides concise and accessible information that is ideal for non-specialists and readers from undergraduate levels and higher

Coal petrology has undergone extremely rapid development since the appearance of the Second Edition of the "Textbook of Coal Petrology" in 1975. The advances have been not only in the techniques and methods used but also in applications to geological and industrial problems. The surprisingly rapid depletion of all available stocks of the Second Edition can be attributed, among other things, to the fact that those now keenly interested in the techniques and results of coal petrology include not only coal scientists but also geologists, geophysicists and petrologists in neighbouring fields. Much new information has become available on matters relating to coal facies and the origin of macerals as a result of studies on North American peat occurrences and of fluorescence microscopy of coals and oil shales. As with petroleum research, some of the most significant advances have come from the integration of coal petrographic and organic geochemical studies. Computers have led to technical advances in

maceral analysis, reflectance measurement and the characterization of fluorescence spectra. Reflected light fluorescence microscopy has been notably productive of new results for both coals and petroleum source rocks. It is for this reason that the Third Edition of the "Textbook" includes two colour plates to illustrate fluorescence. Microscopic techniques for the determination of rank have been of special value since measurements of vitrinite reflectance in different rocks are applied to the assessment of the degree of diagenesis and metamorphism, to unravelling the tectonic history of sedimentary basins and to estimating palaeogeothermal gradients. In petroleum geology the reflectance of vitrinite is now widely accepted as the best measure of maturity of source rocks. The use of fluorescence microscopy has become indispensable to the petroleum industry because it enables oil-generating macerals to be recognized and their abundance estimated. "Coal petrology" in a narrow sense has given way to the much broader pursuit of "organic petrology". Coal petrographic studies now provide insights into the process of carbonization and liquefaction. The formation of coke has been shown to be influenced (amongst other things) by the way in which the reactive macerals and inertinite are associated with each other in the coal. Comparative studies of maceral composition and rank with those of the relevant hydrogenation residues enable conversion rates and efficiencies to be assessed for the various coals. Numerous additions (109 pages with 5 plates, 2 of which coloured, 45 figures and 10 tables) to the previous second edition appear after the original relevant sections. New references will be found separately at the end of the previous literature section.

Analytical Methods for Coal and Coal Products, Volume I presents the analytical problems and methods for coal and its numerous products. This book discusses the technological importance of the measurement of the physical properties of coal. Organized into four parts encompassing 19 chapters, this volume starts with an overview of the petrographic analysis of coal wherein it involves two distinctive methods, namely, the reflected light and the transmitted light techniques. This text then discusses the means and methods of reflectance determination and proceeds to outline some of the results obtained and conclusions derived from them about the nature of coal. Other chapters explain the mechanical properties of coal, which are measured in order to predict its behavior in coal mines, coal winning, coal storage, coal comminution, coal handling, briquetting and agglomeration, and several other situations. The final chapter deals with the characterization of the liquid products of coal conversion. This book is a valuable resource for engineers, scientists, chemists, and researchers.

Stach's Textbook of Coal PetrologyLubrecht & Cramer Limited

With substantial contributions from experienced industrial scientists and engineers, this work will have real application towards improving process efficiency and improvement in the trillion-dollar global petroleum industry. It presents an overview of the emerging field of petroleomics, which endeavors to understand the fundamental components of crude oil. Petroleomics promises to

revolutionize petroleum science in much the same way that genomics transformed the study of medicine not long ago. Asphaltenes are a particular focus, with many chapters devoted to the analysis of their structure and properties.

This volume is the final outcome of a conference designed to wrap up IOCP Project 157 (" Early Organic Evolution and Mineral and Energy Resources ") after a decade of prolific activity. The picturesque solitude of Maria Laach Abbey in the Eifel Mountains (FRO) provided the appropriate setting for a conclave of some 80 specialists from the various walks of the field who, during the week of Sept. 19 - 23, 1988, strived hard to define the state of the art in the principal segments of this Earth Science frontier. The following pages contain the essence of the conference transactions, giv ing a vivid cross-section of the activities pursued by IOCP Project 157 during its final years. The coverage of topics is not necessarily complete, but rather eclec tic in part. With regard to single papers dealing with modern analogues of ancient processes, the book title might even be considered a grave misnomer. Neverthe less, all contributions relate to the subject in the widest sense, and the reader should be reminded that much of the heterogeneity reflected by the volume de rives from the fact that it is primarily a research report from a highly inter disciplinary field rather than a textbook.

World coal production will increase up to 2040 and world energy consumption will be very much dependent on coal. For a better planning of coal mining operations, it is essential to know the strength, cuttability and workability of coal, which are interrelated. The main objective of the book is to combine the research studies and compile the book oriented to the coal industry, research students, practicing engineers, and coal mine panning teams. Key Features Covers all the subjects related to coal properties, mining and excavation in one book Presents a summary of physical and mechanical properties of coal belonging to a wide range of countries Includes typical examples of using physical and mechanical of coal in mine planning and in its industrial applications Explains use of cuttability characteristics of coal Describes planning of coal production using ploughs, shearers and surface miners

Coal Structure deals with the structure, mineral and organic components, and the physical and chemical properties of coal. The book is composed of papers that present a detailed and coherent description of both the physical and chemical structure of coal and the effect of coal structural features on coal processing. The contributions in the text discuss such topics as coal macerals, coal porosity, aromaticity, functional groups and heteroatoms in coal, polymer structure of coal, and mineral matter in coal. Engineers, researchers, scientists, and management personnel who are directly involved in the study and processing of coal will find the book a well-rounded reference source.

Founded on the work of the renowned Advanced Combustion Engineering Research Center, the authors document and integrate current knowledge of the organic and inorganic structure of coal and its reaction processes. With the

urgent need for cleaner, more efficient use of this worldwide fuel, their work will set a clear course for future research.
Contributed papers.
Coal, Oil Shale, Natural Bitumen, Heavy Oil and Peat is a component of Encyclopedia of Energy Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Coal, Oil Shale, Natural Bitumen, Heavy Oil and Peat with contributions from distinguished experts in the field discusses matters of great relevance to our world such as: Coal, Oil Shale, Natural Bitumen, Heavy Oil and Peat; Coal Geology and Geochemistry; Coal Technology; Oil Shale; Natural Bitumen (Tar Sands) and Heavy Oil; Peat and Peatland. These two volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.
This is a concise book with comprehensive information on coal and biomass ash generated from their combustion in thermal power plants. It presents detailed studies on ash generated from contrasting coal and biomass feedstocks, and provides a comparative evaluation of these different ashes in terms of their origin, properties, environmental hazards. Potential utilizations with specific advantages and disadvantages of the respective ashes are elaborated in detail, including some innovative means of ash utilization for value addition purposes. By addressing both the theory and commercial exploitation of these products, this book will be helpful for industrialists, academicians and researchers alike.
Current and authoritative with many advanced concepts for petroleum geologists, geochemists, geophysicists, or engineers engaged in the search for or production of crude oil and natural gas, or interested in their habitats and the factors that control them, this book is an excellent reference. It is recommended without reservation. AAPG Bulletin.
Issues in Fossil Fuel Energy Technologies / 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Oil and Gas Research. The editors have built Issues in Fossil Fuel Energy Technologies: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Oil and Gas Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Fossil Fuel Energy Technologies: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.
"Organic Petrology" is a new book, but one with antecedents. It is rooted in the famous "Stach"s Textbook of Coal Petrology"" (1975) and its predecessor "Stach"s Lehrbuch der Kohlenpetrologie"" (1935) but has been completely revised and expanded in order

to incorporate a huge amount of new data obtained in the two decades since the publication of the 3rd edition of Stach. "Organic Petrology" now covers the whole field of the petrology of organic material in rocks. The book addresses researchers, undergraduate, graduate and postgraduate students, people concerned with the assessment, mining and use of coal and oil shales, and exploration workers interested in the occurrence and the evaluation of petroleum and natural gas and their source rocks.

This book is a complete guide to the technique of fluorescence microscopy. It describes the history, principles, and applications of quantitative fluorescence microscopy and also gives much practical information about the instrumentation required. In addition, there is a discussion of the exciting developments in confocal fluorescence microscopy, which allows the three-dimensional distribution of particular substances to be determined.

The author presents examples of coal deposits two different continents: from the European Carboniferous and the Permian Gondwana sequence of Australia. The organic and petrographic composition of the coal content of palaeo-environmentally well defined groups of sediments allow the discrimination of two coal facies indices as suitable indicators for distinct settings. Combining the analytical methods of coal petrography, sedimentology and sequence stratigraphy an integrated view of coal formation is attained.

This book is an integrated approach towards the applications of coal (organic) petrology and discusses the role of this science in the field of coal and coal-related topics. Coal petrology needs to be seen as a continuum of organic (macerals) and inorganic (minerals and trace elements) contributions to the total coal structure, with the overprint of coal rank. All this influences the behavior of coal in utilization, the coal by-products, the properties of coal as a reservoir for methane or a sequestration site for carbon dioxide, and the relationships of coal utilization with health and environmental issues. The interaction of coal properties and coal utilization begins at the mine face. The breakage of the coal in mining influences its subsequent beneficiation. Beneficiation is fundamental to the proper combustion of coal and is vital to the preparation of the feedstock for the production of metallurgical coke. An understanding of basic coal properties is important for achieving reductions in trace element emissions and improving the efficiency of combustion and combined-cycle gasification. The production of methane from coal beds is related to the properties of the in situ coal. Similarly, coal bed sequestration of carbon dioxide produced from combustion is dependent on the reservoir properties. Environmental problems accompany coal on its way from the mine to the point of utilization and beyond. Health aspects related with coal mining and coal utilization are also included because, in planning for coal use, it is impossible to separate environmental and health issues from the discussion of coal utilization. The book is aimed at a wide audience, ranging from researchers, lecturers and students to professionals in industry and discusses issues (such as the environmental, and health) that are of concern to the general public as a whole. This book focuses on the applications of coal (organic) petrology to our modern society It is an integrated approach to help the reader appreciate the importance of coal quality and coal utilization. Coal composition (macerals, mineral, trace elements) and the overprint of coal rank are treated together The book synthesises all the possibilities of the organic

petrology as a tool for coal utilization in conventional applications (mining and beneficiation, coal combustion, gasification, liquefaction, carbonization), as a precursor of carbon materials and as a petroleum source and reservoir rock The role of applied petrology in the characterization of solid by-products from coal utilization is also discussed In addition, this book describes the present status of environmental and health problems linked to coal utilization and the ways in which such problems might be overcome in the future

Biomass burning profoundly affects atmospheric chemistry, the carbon cycle, and climate and may have done so for millions of years. Bringing together renowned experts from paleoecology, fire ecology, atmospheric chemistry, and organic chemistry, the volume elucidates the role of fire during global changes of the past and future. Topics covered include: the characterization of combustion products that occur in sediments, including char, soot/fly ash, and polycyclic aromatic hydrocarbons; the calibration of these constituents against atmospheric measurements from wildland and prescribed fire emissions; spatial and temporal patterns in combustion emissions at scales of individual burns to the globe.

Organic petrology is a discipline of geology which integrates multidisciplinary approaches for the exploration and evaluation of fossil fuel resources by conventional and unconventional procedures. Organic petrology has brought forth new, powerful analytical tools for the characterization of geological hydrocarbon systems, thus providing information where previous analytical techniques prove to be less effective. The reference provides a broad, comprehensive source of information about the application of organic petrology in the investigation of geological formations related with the production and accumulation of oil and gas. Eleven chapters cover a variety of topics (kerogens, dispersed organic matter systems, sedimentary organic matter systems, oil and gas shales, etc.). Additional information in chapters referring to examples in specific geographical locations provides a global perspective of hydrocarbon exploration. The book is an introductory reference for all scholars involved in applied organic petrology of hydrocarbon systems including graduate and undergraduate geology students, engineers and lab technicians. [Series intro] Geology: Current and Future Developments is a book series that brings together the latest contributions to geological research. Each volume features chapters contributed by academic scholars / professional experts from around the world. The scope of the book series includes (but is not limited to) topics such as plate tectonics, climate science, hydrocarbon exploration, mineral exploration, and environmental science. This series is intended as a useful compendium of scholarly reference material for geology students and professionals.