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Scientific and Technical Aerospace Reports 1981
The Combustion of Solid Fuels and Wastes David Tillman 2012-12-02 Careful organization and empirical correlations help clarify the prodigious technical information presented in this useful reference. Key Features * Written for practicing engineers, this comprehensive book supplies an overall framework of the combustion process; It connects information on specific reactions

and reaction sequences with current applications and hardware; Each major group of combustion solids is evaluated; Among the many topics covered are: * Various biomass forms * The coalification process * Grate, kiln, and suspension firing * Fluidized bed combustion * Gasification of solids * The manufacturing process

Fossil Energy Update 1983

Pulverized-Coal Combustion and Gasification L. Smoot 2013-04-17 viii and approaches could be adapted to other coal conversion and combustion problems, we have not considered combustion or gasification in fluidized or fixed beds or in situ processes. In addition, we have not considered other fossil-fuel combustion problems associated with oil shale, tar sands, etc., even though many aspects of pulverized-coal combustion would relate to these problems. For the case of pulverized-coal models, we have attempted to provide a detailed description of the model foundations. Parts I and II of this book emphasize general principles for describing reacting, turbulent or laminar, multiphase systems. General conservation equations are developed and summarized. The basis for computing thermochemical equilibrium in complex, heterogeneous mixtures is presented, together with techniques for rapid computation and reference to required input data. Rate processes are then discussed, including pertinent aspects of turbulence, chemical kinetics, radiative heat transfer, and gas-particle convective-diffusive interactions. Much of Part II deals with parameters and coefficients for describing these complex rate processes. This part of the book provides recommended values of coefficients and parameters for treating complex reacting flows. Parts I and II may well be suitable for use in an advanced course in reacting flows, and have been written partly with that in mind. Part III deals with more specific aspects of pulverized-coal characteristics and rate processes. Following a general description of coal structure and constitution, coal pyrolysis and char oxidation processes are considered.

Monthly Catalogue, United States Public Documents 1980

Environmental Speciation and Monitoring Needs for Trace Metal-containing Substances from Energy-related Processes 1981

Energy Research Abstracts 1984

Coal Gasification and Its Applications David A. Bell 2010-12-08 Skyrocketing energy costs have spurred renewed interest in coal gasification. Currently available information on this subject needs to be updated, however, and focused on specific coals and end products. For example, carbon capture and sequestration, previously given little attention, now has a prominent role in coal conversion processes. This book approaches coal gasification and related technologies from a process engineering point of view, with topics chosen to aid the process engineer who is interested in a complete, coal-to-products system. It provides a perspective for engineers and scientists who analyze and improve components of coal conversion processes. The first topic describes the nature and availability of coal. Next, the fundamentals of gasification are described, followed by a description of gasification technologies and gas cleaning processes. The conversion of syngas to electricity, fuels and chemicals is then discussed. Finally, process economics are covered. Emphasis is given to the selection of gasification technology based on the type of coal fed to the gasifier and desired end product: E.g., lower temperature gasifiers produce substantial quantities of methane, which is undesirable in an ammonia synthesis feed. This book also reviews gasification kinetics which is informed by recent papers and process design studies by the US Department of Energy and other groups, and also largely ignored by other gasification books. • Approaches coal gasification and related technologies from a process engineering point of view, providing a perspective for engineers and scientists who analyze and improve components of coal conversion processes • Describes the fundamentals of gasification, gasification technologies, and gas cleaning processes •

Emphasizes the importance of the coal types fed to the gasifier and desired end products • Covers gasification kinetics, which was largely ignored by other gasification books Provides a perspective for engineers and scientists who analyze and improve components of the coal conversion processes Describes the fundamentals of gasification, gasification technologies, and gas cleaning processes Covers gasification kinetics, which was largely ignored by other gasification books

U.S.international climate change approach : a clean technology solution : hearing

REAL TIME FLAME MONITORING OF GASIFIER BURNER AND INJECTORS. David Rue 2003 This report is submitted to the United States Department of Energy in partial fulfillment of the contractual requirements for Phase I of the project titled, ''Real Time Flame Monitoring of Gasifier Burner and Injectors'', under co-operative agreement number DE-FS26-02NT41585. The project is composed of three one-year budget periods. The work in each year is divided into separate Tasks to facilitate project management, orderly completion of all project objectives, budget control, and critical path application of personnel and equipment. This Topical Report presents results of the Task 1 and 2 work. The 2 D optical sensor was developed to monitor selected UV and visible wavelengths to collect accurate flame characterization information regarding mixing, flame shape, and flame rich/lean characteristic. Flame richness, for example, was determined using OH and CH intensity peaks in the 300 to 500 nanometer range of the UV and visible spectrum. The laboratory burner was operated over a wide range of air to fuel ratio conditions from fuel rich to fuel lean. The sooty oxygen enriched air flames were established to test the sensor ability to characterize flame structures with substantial presence of hot solid particles emitting strong ''black body radiation''. The knowledge gained in these experiments will be very important when the sensor is used for gasifier flame analyses. It is expected that the sensor when installed on the Global Energy gasifier will be exposed to complex radiation patterns. The measured energy will be a combination of spectra emitted by the combusting gases, hot solid particulates, and hot walls of the gasifier chamber. The ability to separate flame emissions from the ''black body emissions'' will allow the sensor to accurately determine flame location relative to the gasifier walls and the injectors, as well as to analyze the flame's structure and condition. Ultimately, this information should enable the gasification processes to be monitored and controlled and as a result increase durability and efficiency of the gasifier. To accomplish goals set for Task 2 GTI will utilize the CANMET Coal Gasification Research facility. The Entrained Coal Gasifier Burner Test Stand has been designed and is currently under construction in the CANMET Energy Technology Center (CETC), the research and technology arm of Natural Resources Canada (NRCan). This Gasifier Burner Stand (GBS) is a scaled-down mock-up of a working gasifier combustion system that can provide the flexible platform needed in the second year of the project to test the flame sensor. The GBS will be capable of simulating combustion and gasification processes occurring in commercial gasifiers, such as Texaco, Shell, and Wabash River.

U.S.-international Climate Change Approach United States. Congress. Senate. Committee on Foreign Relations. Subcommittee on International Economic Policy, Export and Trade Promotion 2007

Implementation of the Provisions of the Energy Policy Act of 2005 United States. Congress. Senate. Committee on Energy and Natural Resources 2006

Library of Congress Catalogs Library of Congress 1980

Energy 1981

Water Supply and Demand in an Energy Supply Model David Abbey 1980

Geochemistry of Geologic CO2 Sequestration Donald J. DePaolo 2018-12-17 Volume 77 of Reviews in Mineralogy and

Geochemistry focuses on important aspects of the geochemistry of geological CO2 sequestration. It is in large part an outgrowth of research conducted by members of the U.S. Department of Energy funded Energy Frontier Research Center (EFRC) known as the Center for Nanoscale Control of Geologic CO2 (NCGC). Eight out of the 15 chapters have been led by team members from the NCGC representing six of the eight partner institutions making up this center - Lawrence Berkeley National Laboratory (lead institution, D. DePaolo - PI), Oak Ridge National Laboratory, The Ohio State University, the University of California Davis, Pacific Northwest National Laboratory, and Washington University, St. Louis.

Monthly Catalog of United States Government Publications United States. Superintendent of Documents 1968

Hydrogen and Syngas Production and Purification Technologies Ke Liu 2010-01-07 Covers the timely topic of fuel cells and hydrogen-based energy from its fundamentals to practical applications Serves as a resource for practicing researchers and as a text in graduate-level programs Tackles crucial aspects in light of the new directions in the energy industry, in particular how to integrate fuel processing into contemporary systems like nuclear and gas power plants Includes homework-style problems

Federal Energy Regulatory Commission Reports United States. Federal Energy Regulatory Commission 1981

Applied Mechanics Reviews 1991

Simulators International XIV Maurice Ades 1997

Coal and Coalbed Gas Romeo M. Flores 2013-10-19 Bridging the gap in expertise between coal and coalbed gas, subfields in which opportunities for cross training have been nonexistent, Coal and Coalbed Gas sets the standard for publishing in these areas. This book treats coal and coalbed gas as mutually inclusive commodities in terms of their interrelated origin, accumulation, composition, distribution, generation, and development, providing a balanced understanding of this energy mix. Currently considered a non-renewable energy resource, coalbed gas, or coalbed methane, is a form of natural gas extracted from coal beds. In recent years, countries have begun to seek and exploit coal for its clean gas energy in an effort to alleviate environmental issues that come with coal use, making a book on this topic particularly timely. This volume takes into account processes of coalification, gasification, and storage and reservoir characterization and evaluation and looks at water management and environmental impacts as well. Covers environmental issues in the development of coalbed gas Includes case studies, field guides and data, examples, and analytical procedures from previous studies and investigations Accessible by a large multidisciplinary market by one of the world's foremost experts on the topic

Inorganic Geochemistry of Coal Shifeng Dai 2023-06-30 Inorganic Geochemistry of Coal explains how to determine the concentrations and modes of occurrence of elements in coal, how to diminish adverse effects of toxic elements on the environment and human health, which elements in coal could be industrially utilized, and which elements can be successfully used as indications for deciphering depositional environments and tectonic evolution. As coal use will remain at an all-time high for the next several decades, there is a critical need for understanding the properties of this fuel to ensure efficient use, encourage its economic by-product potential, and to help minimize its negative technological, environmental and health impacts. Features dozens of never-before published illustrations of critical features of the inorganic geochemistry of coal Covers both the theory and applications of the topic, including case studies to serve as real-world examples Includes a chapter on the health and environmental impacts of the mining, development and use of coal

Encyclopedia of Electrochemical Power Sources Jürgen Garche 2013-05-20 The Encyclopedia of Electrochemical Power Sources is a truly interdisciplinary reference for those working with batteries, fuel cells, electrolyzers, supercapacitors, and photo-electrochemical cells. With a focus on the environmental and

economic impact of electrochemical power sources, this five-volume work consolidates coverage of the field and serves as an entry point to the literature for professionals and students alike. Covers the main types of power sources, including their operating principles, systems, materials, and applications Serves as a primary source of information for electrochemists, materials scientists, energy technologists, and engineers Incorporates nearly 350 articles, with timely coverage of such topics as environmental and sustainability considerations

Proceedings of the Eighth Underground Coal Conversion Symposium 1982

Water Supply and Demand in an Energy Supply Model David Abbey 1980

Handbook of Energy Cutler J. Cleveland 2013-05-02 Handbook of Energy, Volume I: Diagrams, Charts, and Tables provides comprehensive, organized coverage on all phases of energy and its role in society, including its social, economic, political, historical, and environmental aspects. While there is a wealth of information about energy available, it is spread across many books, journals, and websites and it tends to target either a particular form of energy or a specific audience. Handbook of Energy provides a central repository of information that meets diverse user communities. It focuses on visual, graphic, and tabular information in a schematic format. Individuals and researchers at all educational levels will find the Handbook of Energy to be a valuable addition to their personal libraries. Easy-to-read technical diagrams and tables display a vast array of data and concepts

Advances in the Science of Victorian Brown Coal Chun - Zhu Li 2004-10-21 Over the past decade, extensive research has been conducted on the subject of coal as one of the world's leading energy sources. The current and future status of this resource is a topic of considerable interest to the largest world economies, including the US, Japan, China and Europe. Advances in the Science of Victorian Brown Coal provides critical reviews of the information and research published over this time, giving the reader an authoritative overview of the science surrounding this important topic. Critical review of recent research surrounding the utilization of brown coal. Key issues addressed include maximized efficiency and minimized environmental impacts Focuses on Victorian Brown Coal within the context of biomass and bituminous coal A critical thermodynamic overview of various advanced power generation technologies

Energy: a Continuing Bibliography with Indexes 1981

Monthly Catalog of United States Government Publications 1979

Combustion Engineering Issues for Solid Fuel Systems Bruce G. Miller 2008-07-02 Design, construct and utilize fuel systems using this comprehensive reference work. Combustion Engineering Issues for Solid Fuel Systems combines modeling, policy/regulation and fuel properties with cutting edge breakthroughs in solid fuel combustion for electricity generation and industrial applications. This book moves beyond theory to provide readers with real-life experiences and tips for addressing the various technical, operational and regulatory issues that are associated with the use of fuels. With the latest information on CFD modeling and emission control technologies, Combustion Engineering Issues for Solid Fuel Systems is the book practicing engineers as well as managers and policy makers have been waiting for. Provides the latest information on CFD modeling and emission control technologies Comprehensive coverage of combustion systems and fuel types Addresses policy and regulatory concerns at a technical level Tackles various technical and operational issues

Pulp & Paper 1983

Energy Insider 1978

Federal Register 1979-12

Air Pollution Abstracts 1970

Synthetic Fuels Development United States. Congress. House. Committee on Science and Technology. Subcommittee on Energy Development and Applications 1981

Los Alamos Science 1982

Low-carbon Technology Transfer David G. Ockwell 2012-12-12 Low carbon technology transfer to developing countries has been both a lynchpin of, and a key stumbling block to a global deal on climate change. This book brings together for the first time in one place the work of some of the world's leading contemporary researchers in this field. It provides a practical, empirically grounded guide for policy makers and practitioners, while at the same time making new theoretical advances in combining insights from the literature on technology transfer and the literature on low carbon innovation. The book begins by summarizing the nature of low carbon technology transfer and its contemporary relevance in the context of climate change, before introducing a new theoretical framework through which effective policy mechanisms can be analyzed. The north-south, developed-developing country differences and synergies are then introduced together with the relevant international policy context. Uniquely, the book also introduces questions around the extent to which current approaches to technology transfer under the international policy regime might be considered to be 'pro-poor'. Throughout, the book draws on cutting edge empirical work to illustrate the insights it affords. The book concludes by setting out constructive ways forward towards delivering on existing international commitments in this area, including practical tools for decision makers.

Papers and Addresses Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry 1978

Drying Technologies for Biotechnology and Pharmaceutical Applications Satoshi Ohtake 2020-02-10 A comprehensive source of information about modern drying technologies that uniquely focus on the processing of pharmaceuticals and biologicals Drying technologies are an indispensable production step in the pharmaceutical industry and the knowledge of drying technologies and applications is absolutely essential for current drug product development. This book focuses on the application of various drying technologies to the processing of pharmaceuticals and biologicals. It offers a complete overview of innovative as well as standard drying technologies, and addresses the issues of why drying is required and what the critical considerations are for implementing this process operation during drug product development. Drying Technologies for Biotechnology and Pharmaceutical Applications discusses the state-of-the-art of established drying technologies like freeze- and spray- drying and highlights limitations that need to be overcome to achieve the future state of pharmaceutical manufacturing. The book also describes promising next generation drying technologies, which are currently used in fields outside of pharmaceuticals, and how they can be implemented and adapted for future use in the pharmaceutical industry. In addition, it deals with the generation of synergistic effects (e.g. by applying process analytical technology) and provides an outlook toward future developments. -Presents a full technical overview of well established standard drying methods alongside various other drying technologies, possible improvements, limitations, synergies, and future directions -Outlines different drying technologies from an application-oriented point of view and with consideration of real world challenges in the field of drug product development -Edited by renowned experts from the pharmaceutical industry and assembled by leading experts from industry and academia Drying Technologies for Biotechnology and Pharmaceutical Applications is an important book for pharma engineers, process engineers, chemical engineers, and others who work in related industries.