Solutions For Combustion Glassman

This book presents basic information about combustion, mostly in the form of examples. It is a textbook for a one-semester or one-quarter course for juniors or seniors in mechanical, aerospace, chemical, or civil engineering.

Annotation This book documents the scientific outcome and constitutes the final report of the Japanese research project on discovery science. During three years more than 60 scientists participated in the project and developed a wealth of new methods for knowledge discovery and data mining. The 52 revised full papers presented were carefully reviewed and span the whole range of knowledge discovery from logical foundations and inductive reasoning to statistical inference and computational learning. A broad variety of advanced applications are presented including knowledge discovery and data mining in very large databases, knowledge discovery in network environments, text mining, information extraction, rule mining, Web mining, image processing, and pattern recognition.

This volume, published in honor of Prof. Luigi Crocco, appears when Luigi Crocco celebrates his 75th birthday of a life devoted to study, research, and teaching. The events in his life and World War II forced Luigi Crocco, as well as other Italian scientists, to look to foreign countries for the calm haven so vital to study. This notwithstanding, his scientific activity was never inter rupted, and this volume is an acknowledgment of scientists and researchers to his work and life. Prefazione Questo volume in onore del prof. ing. Luigi Crocco vede la luce quando Luigi Crocco compie i 75 anni di una vita dedicata allo studio, alia ricerca e all'insegnamento. a Le vicende della vita, ed anche della 2 guerra mondiale, hanno costretto Luigi Crocco, come altri scienziati italiani, a dover cercare in altri Paesi quella serenita necessaria per dedicarsi allo studio. Ma la sua attivita scientifica non ha avuto interruzioni e questo volume essere la testimonianza di studiosi e di ricercatori alia sua opera e alia sua vita."

Fundamentals of Air Pollution Engineering

Introduction to Internal Combustion Engines

The Formation and Emission of Trace Species

Modern Research Topics in Aerospace Propulsion

Industrial Combustion Pollution and Control

Revised and significantly expanded, the fifth edition of this classic work offers both new and substantially updated information. As the definitive reference on fire protection engineering, this book provides thorough treatment of the current best practices in fire protection engineering and performance-based fire safety. Over 130 eminent fire engineers and researchers contributed book, representing universities and professional organizations around the world. It remains the indispensible source for reliable coverage of fire safety engineering fundamentals, fire dynamics, hazard calculations, fire risk analysis, modeling and more. With seventeen new chapters and over 1,800 figures, the this new edition contains: Step-by-step equations that explain enginee

Comprehensive revision of the coverage of human behavior in fire, including several new chapters on egress system design, occupant evacuation scenarios, combustion toxicity and data for human behavior analysis Revised fundamental chapters for a stronger sense of context Added chapters on fire protection system selection and design, including selection of fire safety syste activation and controls and CO2 extinguishing systems Recent advances in fire resistance design Addition of new chapters on industrial fire protection, including vapor clouds, effects of thermal radiation on people, BLEVEs, dust explosions and gas and vapor explosions New chapters on fire load density, curtain walls, wildland fires and vehicle tunnels Essential reference apper conversion factors, thermophysical property data, fuel properties and combustion data, configuration factors and piping properties “Three-volume set; not available separately”

Atomization and sprays are used in a wide range of industries: mechanical, chemical, aerospace, and civil engineering; material science and metallurgy; food; pharmaceutical, forestry, environmental protection; medicine; agriculture; meteorology and others. Some specific applications are spray combustion in furnaces, gas turbines and rockets, spray drying and cooling, air conc powdered metallurgy, spray painting and coating, inhalation therapy, and many others. The Handbook of Atomization and Sprays will bring together the fundamental and applied material from all fields into one comprehensive source. Subject areas included in the reference are droplets, theoretical models and numerical simulations, phase Doppler particle analysis, applications, more.

CombustionAcademic Press

Principles of Combustion

Engineering Combustion Essentials

Directory of Fire Research in the United States, 1971-1973

Unsteady Combustor Physics

Computational Fluid Dynamics in Industrial Combustion

The first book to present a full-color visual panorama of combustion images along with explanatory and tutorial overviews.

Combustion technology has traditionally been dominated by air/fuel combustion. However, two developments have increased the significance of oxygen-enhanced combustion—new technologies that produce oxygen less expensively and the increased importance of environmental regulations. Advantages of oxygen-enhanced combustion include less pollutant emissions as well as increased energy efficiency and productivity. Oxygen-Enhanced Combustion, Second Edition compiles information about using oxygen to enhance industrial heating and melting processes. It integrates fundamental principles, applications, and equipment design in one volume, making it a unique resource for specialists implementing the use of oxygen in combustion systems. This second edition of the bestselling book has more than doubled in size. Extensively updated and expanded, it covers significant advances in the technology that have occurred since the publication of the first edition. What’s New in This Edition Expanded from 11 chapters to 30, with most of the existing chapters revised A broader view of oxygen-enhanced combustion, with more than 50 contributors from over 20 organizations around the world More coverage of fundamentals, including fluid flow, heat transfer, noise, flame impingement, CFD modeling, soot formation, burner design, and burner testing New chapters on applications such as flameless combustion, steel reheating, iron production, cement production, power generation, fluidized bed combustion, chemicals and petrochemicals, and diesel engines This book offers a unified, up-to-date look at important commercialized uses of oxygen-enhanced combustion in a wide range of industries. It brings together the latest knowledge to assist those researching, engineering, and implementing combustion in power plants, engines, and other applications.

Combustion Engineering, a topic generally taught at the upper undergraduate and graduate level in most mechanical engineering programs, and many chemical engineering programs, is the study of rapid energy and mass transfer usually through the common physical phenomena of flame oxidation. It covers the physics and chemistry of this process and the engineering applications - from the generation of power such as the internal combustion automobile engine to the gas turbine engine. Renewed concerns about energy efficiency and fuel costs, along with continued concerns over toxic and particulate emissions have kept the interest in this vital area of engineering high and brought about new developments in both fundamental knowledge of flame and combustion physics as well as new technologies for flame and fuel control. New chapter on new combustion concepts and technologies, including discussion on nanotechnology as related to combustion, as well as microgravity combustion, microcombustion, and catalytic combustion - all interrelated and discussed by considering scaling issues (e.g., length and time scales) New information on sensitivity analysis of reaction mechanisms and generation and application of reduced mechanisms Expanded coverage of turbulent reactive flows to better illustrate real-world applications Important new sections on stabilization of diffusion flames. For the first time, the concept of triple flames will be introduced and discussed in the context of diffusion flame stabilization

In Honor of Corrado Casci

Introduction to Combustion Phenomena

Lees' Loss Prevention in the Process Industries

Modelling and Solution Techniques for Multiphase Flow

This comprehensive text covers principles and applications with an emphasis on the theoretical modeling of combustion. Addresses chemical thermodynamics and kinetics, conservation equations for multi-component reacting flows, deflagration and detonation waves, premixed laminar flames, spray combustion of fuel droplets, ignition, and related topics. Many examples are included to demonstrate the application of theory. Emphasizes the use of digital computers for solutions.

Now in its fourth edition, Introduction to Internal Combustion Engines remains the indispensable text to guide you through automotive or mechanical engineering, both at university and beyond. Thoroughly updated, clear, comprehensive and well-illustrated, with a wealth of worked examples and problems, its combination of theory and applied practice is sure to help you understand internal combustion engines, from thermodynamics and combustion to fluid mechanics and materials science. Introduction to Internal Combustion Engines: - Is ideal for students who are following specialist options in internal combustion engines, and also for students at earlier stages in their courses - especially with regard to laboratory work - Will be useful to practising engineers for an overview of the subject, or when they are working on particular aspects of internal combustion engines that are new to them - Is fully updated including new material on direct injection spark engines, supercharging and renewable fuels - Offers a wealth of worked examples and end-of-chapter questions to test your knowledge - Has a solutions manual availble online for lecturers at www.palgrave.com/engineering/stone

Fundamentals of Combustion Processes is designed as a textbook for an upper-division undergraduate and graduate level combustion course in mechanical engineering. The authors focus on the fundamental theory of combustion and provide a simplified discussion of basic combustion parameters and processes such as thermodynamics, chemical kinetics, ignition, diffusion and pre-mixed flames. The text includes exploration of applications, example exercises, suggested homework problems and videos of laboratory demonstrations

Energy Research Abstracts

Handbook of Atomization and Sprays

Combustion Engineering, Second Edition

Combustion Theory

Symposium (International) on Combustion

Whether in the Stone Age or in Greek mythology, fire has always been the essence of life. As G.G. Brown put it in 1928, “Combustion is without exaggeration the most important reaction to the human race. All human and animal existence depends upon combustion as its course of energy.” This book provides a detailed description of the elements of combustion, offering descriptive figures, illustrative quips, and analogies to facilitate understanding. It begins with some historical highlights of the understanding of combustion and technological progresses. It then discusses the thermodynamic and chemical kinetics underlying the fast chemical reactions, before expounding on the fundamental combustion wave, or flame. After this, the book moves onto the premixed turbulent flame and the spark-ignited turbulent flame, before considering the diffusion-controlled, non-premixed flame in both laminar and turbulent forms. The book concludes with explanations of wonderful natural combustion, fire, fire-retarding slime and DNA, and the amazing bombardier beetle.

Over the last three decades the process industries have grown very rapidly, with corresponding increases in the quantities of hazardous materials in process, storage or transport. Plants have become larger and are often situated in or close to densely populated areas. Increased hazard of loss of life or property is continually highlighted with incidents such as Flixborough, Bhopal, Chernobyl, Three Mile Island, the Phillips 66 incident, and Piper Alpha to name but a few. The field of Loss Prevention is, and continues to, be of supreme importance to countless companies, municipalities and governments around the world, because of the trend for processing plants to become larger and often be situated in or close to densely populated areas, thus increasing the hazard of loss of life or property. This book is a detailed guidebook to defending against these, and many other, hazards. It could without exaggeration be referred to as the "bible" for the process industries. This is THE standard reference work for chemical and process engineering safety professionals. For years, it has been the most complete collection of information on the theory, practice, design elements, equipment, regulations and laws covering the field of process safety. An entire library of alternative books (and cross-referencing systems) would be needed to replace or improve upon it, but everything of importance to safety professionals, engineers and managers can be found in this all-encompassing reference instead. Frank Lees' world renowned work has been fully revised and expanded by a team of leading chemical and process engineers working under the guidance of one of the world’s chief experts in this field. Sam Mannan is professor of chemical engineering at Texas A&M University, and heads the Mary Kay O’Connor Process Safety Center at Texas A&M. He received his MS and Ph.D. in chemical engineering from the University of Oklahoma, and joined the chemical engineering department at Texas A&M University as a professor in 1997. He has over 20 years of experience as an engineer, working both in industry and academia. New detail is added to chapters on fire safety, engineering, explosion hazards, analysis and suppression, and new appendices feature more recent disasters. The many thousands of references have been updated along with standards and codes of practice issued by authorities in the US, UK/Europe and internationally. In addition to all this, more regulatory relevance and case studies have been included in this edition. Written in a clear and concise style, Loss Prevention in the Process Industries covers traditional areas of personal safety as well as the more technological aspects and thus provides balanced and in-depth coverage of the whole field of safety and loss prevention. * A must-have standard reference for chemical and process engineering safety professionals * The most complete collection of information on the theory, practice, design elements, equipment and laws that pertain to process safety * Only single work to provide everything; principles, practice, codes, standards, data and references needed by those practicing in the field

Progress in Astronautics and Aeronautics—Volume 15: Heterogeneous Combustion focuses on the processes, reactions, methodologies, and techniques involved in heterogeneous combustion. The selection first offers information on the techniques for the study of combustion of beryllium and aluminum particles, study of quenched aluminum particle combustion, and spectroscopic investigation of metal combustion. Discussions focus on the combustion of metal particles in a hot oxidizing atmosphere, experimental apparatus and procedure, selected examples of residue observations, ignition of beryllium, and photographic study of particle combustion. The text then takes a look at the analytical developments, experimental observations in oxygen atmospheres, and experimental observations in carbon dioxide atmospheres of vapor-phase diffusion flames in the combustion of magnesium and aluminum. The publication ponders on the combustion of elemental boron with fluorine, combustion of pyrolytic boron nitride, characteristics of diborane flames, oxidation of diethyldiborane, and reaction of pentaborane and hydrazine and structure of the adduct. The selection is a dependable reference for readers interested in heterogeneous combustion.

Soot Formation in Combustion

Air Force Research Resumés

Patents

Proceedings of a Workshop Held at the Joint Research Centre, Ispra (Italy), 18-22 November 1985

IUTAM Symposium on Asymptotics, Singularities and Homogenisation in Problems of Mechanics

This reference overflows with an abundance of experimental techniques, simulation strategies, and practical applications useful in the control of pollutants generated by combustion processes in the metals, minerals, chemical, petrochemical, waste, incineration, paper, glass, and foods industries. The book assists engineers as they attempt to meet e

Combustion Engineering, Second Edition maintains the same goal as the original: to present the fundamentals of combustion science with application to today’s energy challenges. Using combustion applications to reinforce the fundamentals of combustion science, this text provides a uniquely accessible introduction to combustion for undergraduate students, first-year graduate students, and professionals in the workplace. Combustion is a critical issue impacting energy utilization, sustainability, and climate change. The challenge is to design safe and efficient combustion systems for many types of fuels in a way that protects the environment and enables sustainable lifestyles. Emphasizing the use of combustion fundamentals in the engineering and design of combustion systems, this text provides detailed coverage of gaseous, liquid and solid fuel combustion, including focused coverage of biomass combustion, which will be invaluable to new entrants to the field. Eight chapters address the fundamentals of combustion, including fuels, thermodynamics, chemical kinetics, flames, detonations, sprays, and solid fuel combustion mechanisms. Eight additional chapters apply these fundamentals to furnaces, spark ignition and diesel engines, gas turbines, and suspension burning, fixed bed combustion, and fluidized bed combustion of solid fuels. Presenting a renewed emphasis on fundamentals and updated applications to illustrate the latest trends relevant to combustion engineering, the authors provide a number of pedagogic features, including: Numerous tables with practical data and formulae that link combustion fundamentals to engineering practice Concise presentation of mathematical methods with qualitative descriptions of their use Coverage of alternative and renewable fuel topics throughout the text Extensive example problems, chapter-end problems, and references These features and the overall fundamentals-to-practice nature of this book make it an ideal resource for undergraduate, first level graduate, or professional training classes. Students and practitioners will find that it is an excellent introduction to meeting the crucial challenge of engineering sustainable combustion systems in a cost-effective manner. A solutions manual and additional teaching resources are available with qualifying course adoption.

Explore a unified treatment of the dynamics of combustor systems, including acoustics, fluid mechanics, and combustion in a single rigorous text. This updated new edition features an expansion of data and experimental material, updates the coverage of flow stability, and enhanced treatment of flame dynamics. Addresses system dynamics of clean energy and propulsion systems used in low emissions systems. Synthesizing the fields of fluid mechanics and combustion into a coherent understanding of the intrinsically unsteady processes in combustors. This is a perfect reference for engineers and researchers in fluid mechanics, combustion, and clean energy.

Combustion Chemistry and the Carbon Neutral Future

Mechanisms and Models

What will the Next 25 Years of Research Require?

Theory and Applications

Fundamentals of Turbulent and Multiphase Combustion

In the last decade, there has been an influx in the development of new technologies for deep space exploration. Countries all around the world are investing in resources to create advanced energetic materials and propulsion systems for their aerospace initiatives. Energetic Materials Research, Applications, and New Technologies is an essential reference source of the latest research in aerospace engineering and its application in space exploration. Featuring comprehensive coverage across a range of related topics, such as molecular dynamics, rocket engine models, propellants and explosives, and quantum chemistry calculations, this book is an ideal reference source for academicians, researchers, advanced-level students, and technology developers seeking innovative research in aerospace engineering.

This fully revised and updated edition of "Handbook of Combustion" - the standard work on this topic - comes with 30% more content and an extended new editorial team with two more renowned experts. The new edition combines the strength of the previous one while increasing the scope by additional chapters on unconventional natural gas, boiling liquid expanding vapor explosion (BLEVE) and smog formation, and by expanding existing topics, e.g., biofuels and chemical looping combustion. The work is divided in five topics: 1) Fundamentals and Safety, 2) Combustion Diagnostics and Pollutants, 3) Gaseous and Liquid Fuels, 4) Solid Fuels, and 5) New Technologies. Cross-references in and between the topics guide the reader to the content of interest and provide access to additional subjects. This major reference summarizes all significant information on combustion such as the chemistry, physics, and modeling of combustion processes, spectroscopic methods, safety regulations, pollutants formation, fuel types and, not the least, environmental impacts. The Handbook of Combustion is a complete and impressive work written for academic as well as industrial researchers and developers. Reviewer quotes (amazon): "... the entire area of combustion, including gasification and new technologies, is described in a clear and comprehensive way." "... this is a unique handbook, which closes a big gap in the literature."

As the demands of transitioning to cleaner, more efficient, reduced and zero carbon emitting vehicles increase, the traditional focus of Combustion Chemistry research is stretching and adapting to help provide solutions to these contemporary issues. Combustion Chemistry and the Carbon Free Future presents a guide to current research in the field and an exploration of possible future steps as we move towards cleaner, greener and reduced carbon combustion chemistry. Beginning with a discussion of emissions chemistry and the chemistry of traditional fuel consumption, the book goes on to discuss a range of alternative fuels, including hydrogen, ammonia, small alcohols, and synthesized hydrocarbon fuels. Methods for predicting and improving efficiency and sustainability, such as low temperature and catalytic combustion, chemical looping, and kinetic modelling and monitoring, are then explored.Combining the knowledge and experience of an interdisciplinary team of experts in the field, Combustion Chemistry and the Carbon Free Future is an insightful guide to current and future focus areas for combustion chemistry researchers in line with the transition to greener, cleaner technologies. Provides insight on current developments in combustion chemistry as a tool for supporting a reduced-carbon future Reviews modeling and diagnostic tools, in addition to key approaches and alternative fuels Includes projections for the future from leaders in the field, pointing current and prospective researchers to potentially fruitful areas to explore

Symposia

Fossil Energy Update

AIAA 74-101 - AIAA 74-150

Handbook of Combustion Emrw Update

Official Gazette of the United States Patent and Trademark Office

Turbulence, turbulent combustion, and multiphase reacting flows have become major research topics in recent decades due to their application across diverse fields, including energy, environment, propulsion, transportation, industrial safety, and nanotechnology. Most of the knowledge accumulated from this research has never been published in book form—until now. Fundamentals of Turbulent and Multiphase Combustion presents up-to-date, integrated coverage of the fundamentals of turbulence, combustion, and multiphase phenomena along with useful experimental techniques, including non-intrusive, laser-based measurement techniques, providing a firm background in both contemporary and classical approaches. Beginning with two full chapters on laminar premixed and non-premixed flames, this book takes a multiphase approach, beginning with more common topics and moving on to higher-level applications. In addition, Fundamentals of Turbulent and Multiphase Combustion: Addresses seven basic topical areas in combustion and multiphase flows, including laminar premixed and non-premixed flames, theory of turbulence, turbulent premixed and non-premixed flames, and multiphase flows Covers spray atomization and combustion, solid-propellant combustion, homogeneous propellants, nitramines, reacting boundary-layer flows, single energetic particle combustion, and granular bed combustion Provides experimental setups and results whenever appropriate Supported with a large number of examples and problems as well as a solutions manual, Fundamentals of Turbulent and Multiphase Combustion is an important resource for professional engineers and researchers as well as graduate students in mechanical, chemical, and aerospace engineering.

This volume is published in honor of Corrado Casci; distinguished international figure devoted to scientific study, research, teaching, and leadership. It is the compilation of contributions by world-renowned scientists on the cutting-edge of the field of aerospace propulsion. These scientists have put together topics that cover a wide range of research in this field. The five main areas covered are: combustion, liquid sprays, computational fluid dynamics, turbomachinery and power cycles, and flight dynamics. Both researchers and practitioners in industry, as well as students (post-graduate level) will find this volume most appealing.

Combustion Theory delves deeper into the science of combustion than most other texts and gives insight into combustions from a molecular and a continuum point of view. The book presents derivations of the basic equations of combustion theory and contains appendices on the background of subjects of thermodynamics, chemical kinetics, fluid dynamics, and transport processes. Diffusion flames, reactions in flows with negligible transport and the theory of pre-mixed flames are treated, as are detonation phenomena, the combustion of solid propellents, and ignition, extinction, and flamibility pehnomena.

Introduction To Combustion

Hazard Identification, Assessment and Control

Fundamentals of Combustion Processes

Progress in Discovery Science

Recent Advances in the Aerospace Sciences

Soot Formation in Combustion represents an up-to-date overview. The contributions trace back to the 1991 Heidelberg symposium entitled "Mechanism and Models of Soot Formation" and have all been reedited by Prof. Bockhorn in close contact with the original authors. The book gives an easy introduction to the field for newcomers, and provides detailed treatments for the specialists. The following list of contents illustrates the topics under review:

Although many books have been written on computational fluid dynamics (CFD) and many written on combustion, most contain very limited coverage of the combination of CFD and industrial combustion. Furthermore, most of these books are written at an advanced academic level, emphasize theory over practice, and provide little help to engineers who need to use CFD for combustion modeling. Computational Fluid Dynamics in Industrial Combustion fills this gap in the literature. Focusing on topics of interest to the practicing engineer, it codifies the many relevant books, papers, and reports written on this combined subject into a single, coherent reference. It looks at each topic from a somewhat narrow perspective to see how that topic affects modeling in industrial combustion. The editor and his team of expert authors address these topics within three main sections: Modeling Techniques-The basics of CFD modeling in combustion Industrial Applications-Specific applications of CFD in the steel, aluminum, glass, gas turbine, and petrochemical industries Advanced Techniques-Subjects rarely addressed in other texts, including design optimization, simulation, and visualization Rapid increases in computing power and significant advances in commercial CFD codes have led to a tremendous increase in the application of CFD to industrial combustion. Thorough and clearly representing the techniques and issues confronted in industry, Computational Fluid Dynamics in Industrial Combustion will help bring you quickly up to date on current methods and gain the ability to set up and solve the various types of problems you will encounter.

Throughout its previous four editions, Combustion has made a very complex subject both enjoyable and understandable to its student readers and a pleasure for instructors to teach. With its clearly articulated physical and chemical processes of flame combustion and smooth, logical transitions to engineering applications, this new edition continues that tradition. Greatly expanded end-of-chapter problem sets and new areas of combustion engineering applications make it even easier for students to grasp the significance of combustion to a wide range of engineering practice, from transportation to energy generation to environmental impacts. Combustion engineering is the study of rapid energy and mass transfer usually through the common physical phenomena of flame oxidation. It covers the physics and chemistry of this process and the engineering applications—including power generation in internal combustion automobile engines and gas turbine engines. Renewed concerns about energy efficiency and fuel costs, along with continued concerns over toxic and particulate emissions, make this a crucial area of engineering. New chapter on new combustion concepts and technologies, including discussion on nanotechnology as related to combustion, as well as microgravity combustion, microcombustion, and catalytic combustion—all interrelated and discussed by considering scaling issues (e.g., length and time scales) New information on sensitivity analysis of reaction mechanisms and generation and application of reduced mechanisms Expanded coverage of turbulent reactive flows to better illustrate real-world applications Important new sections on stabilization of diffusion flames—for the first time, the concept of triple flames will be introduced and discussed in the context of diffusion flame stabilization

Joint Meeting of the U.S. Sections of the Combustion Institute, Western States, Central States, Eastern States

Combustion

Energetic Materials Research, Applications, and New Technologies

A Gallery of Combustion and Fire

In Honor of Luigi Crocco on His Seventy-fifth Birthday

A rigorous and thorough analysis of the production of air pollutants and their control, this text is geared toward chemical and environmental engineering students. Topics include combustion, principles of aerosol behavior, theories of the removal of particulate and gaseous pollutants from effluent streams, and air pollution control strategies. 1988 edition.Reprint of the Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1988 edition.

Materials presented at the Inspra-Courses Seminar held in Inspra, Italy, Nov. 1985 provide general principles and applications for the appreciation of the similarities and differences in the approaches taken. An explanation of the physical nature of the particular multiphase flow application is followed by a presentation of the model adopted, emphasizing its distinguishing features. The technique employed for the numerical solution is discussed, usually supported by numerical results. No index. Book club price $117. Annotation copyrighted by Book News, Inc., Portland, OR

Proceedings of the IUTAM Symposium held in Liverpool, UK, 8-11 July 2002

Heterogeneous Combustion

Final Report of the Japanese Discovery Science Project

A Selection of Technical Papers Based Mainly on the American Institute of Aeronautics and Astronautics Heterogeneous Combustion Conference Held at Palm Beach, Florida, December 11-13, 1963

SFPE Handbook of Fire Protection Engineering

Oxygen-Enhanced Combustion, Second Edition