

Chemistry Of Pyrotechnics Basic Principles And Theory Second Edition

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Pyrotechnics: the History and Art of Firework Making - Alan St. Hill Brock 1922

The Chemistry of Powder And Explosives - Dr. Tenney L. Davis 2016-03-28

The present volume contains in one binding the whole contents of Volume I, first published in May, 1941, and the whole contents of Volume II which was published in March, 1943. The book was primarily for chemists. The writing of it was commenced in order that a textbook might be available for the use of students in the course in powder and explosives which the author gave for about twenty years (nearly every year since the first World War) to fourth-year and graduate students of chemistry and of chemical engineering at the Massachusetts Institute of Technology.[...] The aim of the book has been to describe as clearly and interestingly as possible, and as fully as seemed profitable the modes of behavior, both physical and chemical, of explosive substances, whether these modes find practical application or not. Historical

material has been included where it was thought that it contributed to this end, and has not been included elsewhere or for any other reason. It is a fact that a knowledge of the history of ideas, of persons, or of things produces something of the same sympathetic understanding of them that living with them and working with them does.-Print ed.

The Chemistry of Explosives - Jacqueline Akhavan 2004

Revised and expanded to reflect new developments in the field, this book outlines the basic principles required to understand the chemical processes of explosives. The Chemistry of Explosives provides an overview of the history of explosives, taking the reader to future developments. The text on the classification of explosive materials contains much data on the physical parameters of primary and secondary explosives. The explosive processes of deflagration and detonation, including the theory of 'hotspots' for the detonation process, are introduced and many examples are provided in the detailed description on the thermochemistry of explosives.

New material includes coverage of the latest explosive compositions, such as high temperature explosives, nitrocubanes, energetic polymers, plasticizers and insensitive munitions (IM). This concise, readable book is ideal for 'A' level students and new graduates with no previous knowledge of explosive materials. With detailed information on a vast range of explosives in tabular form and an extensive bibliography, this book will also be useful to anyone needing succinct information on the subject.

Chemistry of Pyrotechnics - John A. Conkling 2010-12-23

Primarily driven by advancing technology and concerns for safety, advancement in the world of pyrotechnics and high-energy materials has exploded in the past 25 years. The promulgation of new government regulations places new and more stringent restrictions on the materials that may be used in energetic mixtures. These regulations now mandate numerous training programs, and initiate other actions, such as OSHA's Process Safety Management standard, intended to eliminate accidents and incidents. Unfortunately, the US lacks an organized, broad-range academic program to cover the science and use of energetic materials and educate the next generation of pyrotechnicians. Designed as a bridge to allow a smooth and confident transition for personnel coming from a chemistry background into the practical world of explosives, **Chemistry of Pyrotechnics: Basic Principles and Theory, Second Edition** emphasizes basic chemical principles alongside practical, hands-on knowledge in the preparation of energetic mixtures. It examines the interactions between and adaptations of pyrotechnics to changing technology in areas such as

obscuration science and low-signature flame emission. Much more than a simple how-to guide, the book discusses chemical and pyrotechnic principles, components of high-energy mixtures, and elements of ignition, propagation, and sensitivity. It offers heat compositions, including ignition mixes, delays, thermites, and propellants and investigates the production of smoke and sound as well as light and color. Promoting the growth and expansion of pyrotechnics as a science, **Chemistry of Pyrotechnics: Basic Principles and Theory, Second Edition** provides practitioners with the ability to apply chemical principles and logic to energetic materials and thereby make the field as productive, useful, and safe as possible.

Organic Chemistry of Explosives - Jai Prakash Agrawal 2007-01-11

Organic Chemistry of Explosives is the first text to bring together the essential methods and routes used for the synthesis of organic explosives in a single volume. Assuming no prior knowledge, the book discusses everything from the simplest mixed acid nitration of toluene, to the complex synthesis of highly energetic caged nitro compounds. Reviews laboratory and industrial methods, which can be used to introduce aliphatic C-nitro, aromatic C-nitro, N-nitro, and nitrate ester functionality into organic compounds. Discusses the advantages and disadvantages of each synthetic method or route, with scope, limitations, substrate compatibility and other important considerations. Features numerous examples in the form of text, reaction diagrams, and tables.

Biochar for Environmental Management

- Johannes Lehmann 2012-05-16

Biochar is the carbon-rich product when biomass (such as wood, manure or crop residues) is heated in a closed

container with little or no available air. It can be used to improve agriculture and the environment in several ways, and its stability in soil and superior nutrient-retention properties make it an ideal soil amendment to increase crop yields. In addition to this, biochar sequestration, in combination with sustainable biomass production, can be carbon-negative and therefore used to actively remove carbon dioxide from the atmosphere, with major implications for mitigation of climate change. Biochar production can also be combined with bioenergy production through the use of the gases that are given off in the pyrolysis process. This book is the first to synthesize the expanding research literature on this topic. The book's interdisciplinary approach, which covers engineering, environmental sciences, agricultural sciences, economics and policy, is a vital tool at this stage of biochar technology development. This comprehensive overview of current knowledge will be of interest to advanced students, researchers and professionals in a wide range of disciplines.

Military pyrotechnics - Henry Burnell Faber 1919

The Preparatory Manual of Black Powder and Pyrotechnics - Jared Ledgard 2006-02

The Preparatory Manual of Black Powder and Pyrotechnics is a new Handbook discussing the world's most commonly used pyrotechnic compositions. The book contains multiple sections dividing the area of pyrotechnics into various levels. Black Powder is the first level, followed by High Performance rocket propellants and gun propellants, then followed by General pyrotechnic compositions. Specialty and Experimental compositions take up the

rear, followed by Fireworks. All compositions are discussed in great detail with complete processes for manufacture. The book discusses a total of 1187 pyrotechnic compositions ranging from black powder compositions, to fireworks, to high performance gun propellants, rocket propellants, incendiary agents, smoke producing mixtures, to specialty compositions including cloud seeding compositions, welding compositions, matches, priming compositions, and experimental compositions, all with a variety of uses, and methods of production

Incendiary Art - Kevin Salatino
1998-01-15

Festivities such as those exalting the court of Louis XIV, the celebration of James II's London coronation, and the commemoration of the peace celebrations of 1749 at The Hague culminated in dazzling pyrotechnical displays. These were in turn reproduced as prints, paintings, and narrative descriptions. This unique book examines the propagandistic and rhetorical functions these printed records came to serve as vehicles of aesthetic, cultural, and emotional significance.

Uncle Tungsten - Oliver Sacks
2013-12-11

Long before Oliver Sacks became a distinguished neurologist and bestselling writer, he was a small English boy fascinated by metals—also by chemical reactions (the louder and smellier the better), photography, squids and cuttlefish, H.G. Wells, and the periodic table. In this endlessly charming and eloquent memoir, the author of *The Man Who Mistook His Wife for a Hat* and *Awakenings* chronicles his love affair with science and the magnificently odd and sometimes harrowing childhood in which that love affair unfolded. In *Uncle Tungsten* we meet Sacks' extraordinary family, from his

surgeon mother (who introduces the fourteen-year-old Oliver to the art of human dissection) and his father, a family doctor who imbues in his son an early enthusiasm for housecalls, to his "Uncle Tungsten," whose factory produces tungsten-filament lightbulbs. We follow the young Oliver as he is exiled at the age of six to a grim, sadistic boarding school to escape the London Blitz, and later watch as he sets about passionately reliving the exploits of his chemical heroes—in his own home laboratory. Uncle Tungsten is a crystalline view of a brilliant young mind springing to life, a story of growing up which is by turns elegiac, comic, and wistful, full of the electrifying joy of discovery.

Introduction to Educational Research

- W. Newton Suter 2012

"Introduction to Educational Research: A Critical Thinking Approach 2e is an engaging and informative core text that enables students to think clearly and critically about the scientific process of research. In achieving its goal to make research accessible to all educators and equip them with the skills to understand and evaluate published research, the text examines how educational research is conducted across the major traditions of quantitative, qualitative, mixed methods, and action research. The text is oriented toward consumers of educational research and uses a thinking-skills approach to its coverage of major ideas"--

Chemistry of High-Energy Materials -

Thomas M. Klapötke 2017-08-21

The 4th revised edition expands on the basic chemistry of high energy materials of the previous editions and examines new research developments, including hydrodynamics and ionic liquids. Applications in military and civil fields are discussed. This work is of interest

to advanced students in chemistry, materials science and engineering, as well as to all those working in defense technology.

The Chemistry of Fireworks - Michael S Russell 2015-11-09

"For centuries fireworks have been a source of delight and amazement in cultures around the world. But what produces their dazzling array of effects? This book takes you behind the scenes to explore the chemistry and physics behind the art of pyrotechnics. Topics covered include history and characteristics of gunpowder; principles behind each of the most popular firework types: rockets, shells, fountains, sparklers, bangers, roman candles and wheels; special effects, including sound effects, coloured smokes and electrical firing; firework safety for private use and displays; and firework legislation. The Chemistry of Fireworks is aimed at students with A level qualifications or equivalent. The style is concise and easy to understand, and the theory of fireworks is discussed in terms of well-known scientific concepts wherever possible. It will also be a useful source of reference for anyone studying pyrotechnics as applied to fireworks. Review Extracts ""a worthwhile addition to the pyrotechnist's library"" Fireworks ""a useful source of information which makes absorbing reading."" Angewandte Chemie, International Edition"

The Chemistry of Fireworks - Michael S Russell 2007-10-31

For centuries fireworks have been a source of delight and amazement in cultures around the world. But what produces their dazzling array of effects? This book takes you behind the scenes to explore the chemistry and physics behind the art of pyrotechnics. Topics covered include history and characteristics of

gunpowder; principles behind each of the most popular firework types: rockets, shells, fountains, sparklers, bangers, roman candles and wheels; special effects, including sound effects, coloured smokes and electrical firing; firework safety for private use and displays; and firework legislation. The Chemistry of Fireworks is aimed at students with A level qualifications or equivalent. The style is concise and easy to understand, and the theory of fireworks is discussed in terms of well-known scientific concepts wherever possible. It will also be a useful source of reference for anyone studying pyrotechnics as applied to fireworks. Review Extracts "a worthwhile addition to the pyrotechnist's library" Fireworks "a useful source of information which makes absorbing reading." Angewandte Chemie, International Edition. *Science and Art: The Contemporary Painted Surface* - Antonio Sgamellotti 2020-07-01

Illustrated Guide to Home Forensic Science Experiments - Robert Bruce Thompson 2012-08-07

Have you ever wondered whether the forensic science you've seen on TV is anything like the real thing? There's no better way to find out than to roll up your sleeves and do it yourself. This full-color book offers advice for setting up an inexpensive home lab, and includes more than 50 hands-on lab sessions that deal with forensic science experiments in biology, chemistry, and physics. You'll learn the practical skills and fundamental knowledge needed to pursue forensics as a lifelong hobby—or even a career. The forensic science procedures in this book are not merely educational, they're the real deal. Each chapter includes one or more lab sessions devoted to a particular topic. You'll find a

complete list of equipment and chemicals you need for each session. Analyze soil, hair, and fibers Match glass and plastic specimens Develop latent fingerprints and reveal blood traces Conduct drug and toxicology tests Analyze gunshot and explosives residues Detect forgeries and fakes Analyze impressions, such as tool marks and footprints Match pollen and diatom samples Extract, isolate, and visualize DNA samples Through their company, The Home Scientist, LLC (thehomescientist.com/forensics), the authors also offer inexpensive custom kits that provide specialized equipment and supplies you'll need to complete the experiments. Add a microscope and some common household items and you're good to go.

The Sourcebook for Teaching Science, Grades 6-12 - Norman Herr 2008-08-11 The Sourcebook for Teaching Science is a unique, comprehensive resource designed to give middle and high school science teachers a wealth of information that will enhance any science curriculum. Filled with innovative tools, dynamic activities, and practical lesson plans that are grounded in theory, research, and national standards, the book offers both new and experienced science teachers powerful strategies and original ideas that will enhance the teaching of physics, chemistry, biology, and the earth and space sciences.

Cases in Public Relations Management - Patricia Swann 2014-02-18

Developed for advanced students in public relations, Cases in Public Relations Management uses recent cases in public relations that had outcomes varying from expected to unsuccessful. The text challenges students to think analytically, strategically, and practically. Each case is based on real events, and is designed to encourage discussion, debate, and exploration of the

options available to today's strategic public relations manager. Key features of this text include coverage of the latest controversies in current events, discussion of the ethical issues that have made headlines in recent years, and strategies used by public relations practitioners. Each case has extensive supplemental materials taken directly from the case for students' further investigation and discussion. The case study approach encourages readers to assess what they know about communication theory, the public relations process, and management practices, and prepares them for their future careers as PR practitioners. New to the second edition are: 27 new case studies, including coverage of social media and social responsibility elements. New chapters on corporate social responsibility (CSR) and activism. End-of-chapter exercises. Embedded hyperlinks in eBook. Fully enhanced companion website that includes: Instructor resources: PowerPoint presentations, Case Supplements, Instructor Guides. Student resources: Quizzes, Glossary, Case Supplements.

Lecture Notes for Pyrotechnic Chemistry - B. J. Kosanke 2005-06-01

Explosive Effects and Applications - Jonas A. Zukas 2013-12-01

This is a broad-based text on the fundamentals of explosive behavior and the application of explosives in civil engineering, industrial processes, aerospace applications, and military uses.

Encyclopedia of the Elements - Per Enghag 2008-01-08

Famous for its history of numerous element discoverers, Sweden is the origin of this comprehensive encyclopedia of the elements. It provides both an important database for professionals as well as detailed reading ranging from historical

facts, discoverers' portraits, colour plates of mineral types, natural occurrences, and industrial figures to winning and refining processes, biological roles and applications in modern chemistry, engineering and industry. Elemental data is presented in fact tables which include numerous physical and thermodynamic properties, isotope lists, radiation absorption characteristics, NMR parameters, and others. Further pertinent data is supplied in additional tables throughout the text. Published in Swedish in three volumes from 1998 to 2000, the contents have been revised and expanded by the author for this English edition.

Encyclopedic Dictionary of Pyrotechnics - B. J. Kosanke 2012-01-01

Chemistry of Pyrotechnics - Chris Mocella 2019-01-15

This book provides chemists with technical insight on pyrotechnics and explosives. It emphasizes basic chemical principles and practical, hands-on knowledge in the preparation of energetic materials. It examines the interactions between and adaptations of pyrotechnics to changing technology in areas such as obscuration science and low-signature flame emission. The updated third edition discusses chemical and pyrotechnic principles, components of high-energy materials, elements of ignition, propagation, and sensitivity. It offers heat compositions, including ignition mixes, delays, thermites, and propellants and investigates the production of smoke and sound as well as light and color.

Chemistry of Pyrotechnics - John A. Conkling 1985-07-02

A perennial bestseller, *Chemistry of Pyrotechnics and Explosives: Basic Principles and Theory*, is simply the

most definitive reference in this field. Author J.A. Conkling first covers the requisite background in chemistry, thermodynamics, and light emission, introduces oxidizing agents, fuels, binders, and retardants, then explores virtually every aspect of formulating pyrotechnics. Topics include the requirements for and preparation of high-energy mixtures, ignition and propagation, heat and delay compositions, and color and light production, including sparks, flitter, and glitter. The journal *Pyrotechnica* said this book "...belongs on every pyrotechnist's bookshelf."

Chemistry of Pyrotechnics - John A. Conkling 2010-12-23

Primarily driven by advancing technology and concerns for safety, advancement in the world of pyrotechnics and high-energy materials has exploded in the past 25 years. The promulgation of new government regulations places new and more stringent restrictions on the materials that may be used in energetic mixtures. These regulations now mandate numerous training programs, and initiate other actions, such as OSHA's Process Safety Management standard, intended to eliminate accidents and incidents. Unfortunately, the US lacks an organized, broad-range academic program to cover the science and use of energetic materials and educate the next generation of pyrotechnicians. Designed as a bridge to allow a smooth and confident transition for personnel coming from a chemistry background into the practical world of explosives, *Chemistry of Pyrotechnics: Basic Principles and Theory, Second Edition* emphasizes basic chemical principles alongside practical, hands-on knowledge in the preparation of energetic mixtures. It examines the

interactions between and adaptations of pyrotechnics to changing technology in areas such as obscuration science and low-signature flame emission. Much more than a simple how-to guide, the book discusses chemical and pyrotechnic principles, components of high-energy mixtures, and elements of ignition, propagation, and sensitivity. It offers heat compositions, including ignition mixes, delays, thermites, and propellants and investigates the production of smoke and sound as well as light and color. Promoting the growth and expansion of pyrotechnics as a science, *Chemistry of Pyrotechnics: Basic Principles and Theory, Second Edition* provides practitioners with the ability to apply chemical principles and logic to energetic materials and thereby make the field as productive, useful, and safe as possible.

Demystifying Explosives - Sethuramasharma Venugopalan 2015-01-09

Demystifying Explosives: Concepts in High Energy Materials explains the basic concepts of and the science behind the entire spectrum of high energy materials (HEMs) and gives a broad perspective about all types of HEMs and their interrelationships. *Demystifying Explosives* covers topics ranging from explosives, deflagration, detonation, and pyrotechnics to safety and security aspects of HEMS, looking at their aspects, particularly their inter-relatedness with respect to properties and performance. The book explains concepts related to the molecular structure of HEMs, their properties, performance parameters, detonation and shock waves including explosives and propellants. The theory-based title also deals with important (safety and security) and interesting (constructive applications) aspects connected with

HEMs and is of fundamental use to students in their introduction to these materials and applications. Explains the concept of high energy materials in simple language and down-to-earth examples Worked examples and problems are given wherever required Demystifies the concept of explosives Limited use of big and complex equations Questions and Suggested Reading are given at the end of each chapter

Hazardous Chemicals Handbook - P A CARSON 2013-10-22

Summarizes core information for quick reference in the workplace, using tables and checklists wherever possible. Essential reading for safety officers, company managers, engineers, transport personnel, waste disposal personnel, environmental health officers, trainees on industrial training courses and engineering students. This book provides concise and clear explanation and look-up data on properties, exposure limits, flashpoints, monitoring techniques, personal protection and a host of other parameters and requirements relating to compliance with designated safe practice, control of hazards to people's health and limitation of impact on the environment. The book caters for the multitude of companies, officials and public and private employees who must comply with the regulations governing the use, storage, handling, transport and disposal of hazardous substances. Reference is made throughout to source documents and standards, and a Bibliography provides guidance to sources of wider ranging and more specialized information. Dr Phillip Carson is Safety Liaison and QA Manager at the Unilever Research Laboratory at Port Sunlight. He is a member of the Institution of Occupational Safety and Health, of the Institution of Chemical

Engineers' Loss Prevention Panel and of the Chemical Industries Association's 'Exposure Limits Task Force' and 'Health Advisory Group'. Dr Clive Mumford is a Senior Lecturer in Chemical Engineering at the University of Aston and a consultant. He lectures on several courses of the Certificate and Diploma of the National Examining Board in Occupational Safety and Health. [Given 5 star rating] - Occupational Safety & Health, July 1994 - Loss Prevention Bulletin, April 1994 - Journal of Hazardous Materials, November 1994 - Process Safety & Environmental Prot., November 1994 Explosives Engineering - Paul W. Cooper 2018-07-19

This graduate text, and Cooper's companion introductory text ('Introduction to the Technology of Explosives'), serve the same markets as the successful explosives reference by Meyer, now in its 4th edition. VCH also published the International Journal of Propellants, Explosives, and Pyrotechnics. The resulting package would give VCH the major presence in the field. This text presents the basic technologies used in the engineering of explosives and explosive systems, i.e., chemistry, burning, detonation, shock waves, initiation theories, scaling. The book is written for upper-division undergraduate or graduate-level scientists and engineers, and assumes a good grasp of basic physics, chemistry, mechanics and mathematic through calculus. It is based on lecture notes used for graduate courses at the Dept. of Energy Laboratories, and could serve as a core text for a course at schools of mining or military engineering. The intent of the book is to provide the engineer or scientist in the field with an understanding of the phenomena involved and the engineering tools

needed to solve/ design/ analyze a broad range of real problems.

Practical Military Ordnance Identification, Second Edition -

Thomas Gersbeck 2019-04-05

The threat variables associated with military ordnance are enormous, requiring the application of a structured process to identify unknown munitions. The focus of *Practical Military Ordnance Identification, Second Edition* is the application of a practical deductive process to identify unknown ordnance items that are commonly recovered outside military control. The author supplies a seven-step procedure to identify unknown munitions by their category, group, and type. Detailed logic trees help users narrow down the possibilities in order to accurately identify ordnance. The book covers the safety precautions associated with each category and group of ordnance. It describes many ordnance construction characteristics and explains the fundamentals of military ordnance fuzing. Appendices define terms and supply abbreviations and acronyms used to describe military ordnances. Coverage new to this edition include: a list of conventional markings; additional safety precautions to take; an expanded list of high explosives; additional technical details on explosives effects; hazards associated with pyrotechnics, pyrophorics, smoke compounds, and incendiaries; a section on pre-1870 projectiles, hand grenades, landmines, underwater ordnances, and rockets; and details on Man-Portable-Air-Defense-Systems (MANPADS) missile systems.

Reducing the Threat of Improvised Explosive Device Attacks by Restricting Access to Explosive Precursor Chemicals - National Academies of Sciences, Engineering, and Medicine 2018-04-19

Improvised explosive devices (IEDs) are a type of unconventional explosive weapon that can be deployed in a variety of ways, and can cause loss of life, injury, and property damage in both military and civilian environments. Terrorists, violent extremists, and criminals often choose IEDs because the ingredients, components, and instructions required to make IEDs are highly accessible. In many cases, precursor chemicals enable this criminal use of IEDs because they are used in the manufacture of homemade explosives (HMEs), which are often used as a component of IEDs. Many precursor chemicals are frequently used in industrial manufacturing and may be available as commercial products for personal use. Guides for making HMEs and instructions for constructing IEDs are widely available and can be easily found on the internet. Other countries restrict access to precursor chemicals in an effort to reduce the opportunity for HMEs to be used in IEDs. Although IED attacks have been less frequent in the United States than in other countries, IEDs remain a persistent domestic threat. Restricting access to precursor chemicals might contribute to reducing the threat of IED attacks and in turn prevent potentially devastating bombings, save lives, and reduce financial impacts. *Reducing the Threat of Improvised Explosive Device Attacks by Restricting Access to Explosive Precursor Chemicals* prioritizes precursor chemicals that can be used to make HMEs and analyzes the movement of those chemicals through United States commercial supply chains and identifies potential vulnerabilities. This report examines current United States and international regulation of the chemicals, and compares the economic, security, and other tradeoffs among potential control strategies.

Introduction to Thermal Analysis -

M.E. Brown 2006-04-11

to Thermal Analysis Techniques and Applications Edited by Michael E. Brown Chemistry Department, Rhodes University, Grahamstown, South Africa

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4733916-Chemistry-Of-Pyrotechnics-Basic-Principles-And-Theory-Second-Edition

Conkling covers the requisite background in chemistry, thermodynamics, and light emission; introduces oxidizing agents, fuels, binders, and retardants; and then explores virtually every aspect of formulating pyrotechnics. Topics include the requirements for and preparation of high-energy mixtures, ignition and propagation, heat and delay compositions, and color and light production, including sparks, glitter, and glitter"--

The Anarchist Cookbook - William Powell 2018-03-11

The Anarchist Cookbook will shock, it will disturb, it will provoke. It places in historical perspective an era when "Turn on, Burn down, Blow up" are revolutionary slogans of the day. Says the author "This book... is not written for the members of fringe political groups, such as the Weatherman, or The Minutemen. Those radical groups don't need this book. They already know everything that's in here. If the real people of America, the silent majority, are going to survive, they must educate themselves. That is the purpose of this book." In what the author considers a survival guide, there is explicit information on the uses and effects of drugs, ranging from pot to heroin to peanuts. There i detailed advice concerning electronics, sabotage, and surveillance, with data on everything from bugs to scramblers. There is a comprehensive chapter on natural, non-lethal, and lethal weapons, running the gamut from cattle prods to sub-machine guns to bows and arrows.

Bretherick's Handbook of Reactive Chemical Hazards - Peter Urben 2016-06-23

'Bretherick' is widely accepted as the reference work on reactive chemical hazards and is essential for all those working with chemicals. It attempts to include every chemical

for which documented information on reactive hazards has been found. The text covers over 5000 elements and compounds and as many again of secondary entries involving two or more compounds. One of its most valuable features is the extensive cross referencing throughout both sections which links similar compounds or incidents not obviously related. The fifth edition has been completely updated and revised by the new Editor and contains documented information on hazards and appropriate references up to 1994, although the text still follows the format of previous editions. Volume 1 is devoted to specific information on the stability of the listed compounds, or the reactivity of mixtures of two or more of them under various circumstances. Each compound is identified by an UPAC-based name, the CAS registry number, its empirical formula and structure. Each description of an incident or violent reaction gives reference to the original literature. Each chemical is classified on the basis of similarities in structure or reactivity, and these groups are listed alphabetically in Volume 2. The group entries contain a complete listing of all the compounds in Volume 1 assigned to that group to assist cross referral to similar compounds. Volume 2 also contains hazard topic entries arranged alphabetically, some with lists. Appendices include a fire related data table for higher risk chemicals, indexes of registry numbers and chemical names as well as reference abbreviations and a glossary.

Thermitic Thermodynamics - Anthony Peter Gordon Shaw 2020-05-13

Thermites, which are generally considered to be reactive mixtures of powdered metals and metal oxides, are an important subset of energetic materials. The underlying

thermodynamic properties of a given mixture dictate whether it may undergo a self-sustaining reaction, liberating heat in the process. Thermodynamic information in the existing scientific literature regarding thermitic combinations is scattered and incomplete. Currently, a comprehensive overview of this nature would be of great use to those working in the areas of pyrotechnics, pyrometallurgy, high-temperature chemistry, and materials science. Thermitic Thermodynamics solves this problem by describing the results of calculations on over 800 combinations of metal, metalloid, and metal oxide reactants. Other features include: A first-of-its-kind adiabatic survey of binary thermitic reactions Provides an overview of key trends in exothermic metal-metal oxide reactivity Describes the role of non-oxide product formation in thermitic systems Explains how to interpret the results of thermochemical calculations effectively An invaluable resource, this book provides an accessible introduction for students and is also an enduring guide for professionals.

Relevant Chemistry Education - Ingo Eilks 2015-07-22

This book is aimed at chemistry teachers, teacher educators, chemistry education researchers, and all those who are interested in increasing the relevance of chemistry teaching and learning as well as students' perception of it. The book consists of 20 chapters. Each chapter focuses on a certain issue related to the relevance of chemistry education. These chapters are based on a recently suggested model of the relevance of science education, encompassing individual, societal, and vocational relevance, its present and future implications, as well as its intrinsic and extrinsic aspects. "Two highly distinguished chemical

educators, Ingo Eilks and Avi Hofstein, have brought together 40 internationally renowned colleagues from 16 countries to offer an authoritative view of chemistry teaching today. Between them, the authors, in 20 chapters, give an exceptional description of the current state of chemical education and signpost the future in both research and in the classroom. There is special emphasis on the many attempts to enthuse students with an understanding of the central science, chemistry, which will be helped by having an appreciation of the role of the science in today's world. Themes which transcend all education such as collaborative work, communication skills, attitudes, inquiry learning and teaching, and problem solving are covered in detail and used in the context of teaching modern chemistry. The book is divided into four parts which describe the individual, the societal, the vocational and economic, and the non-formal dimensions and the editors bring all the disparate leads into a coherent narrative, that will be highly satisfying to experienced and new researchers and to teachers with the daunting task of teaching such an intellectually demanding subject. Just a brief glance at the index and the references will convince anyone interested in chemical education that this book is well worth studying; it is scholarly and readable and has tackled the most important issues in chemical education today and in the foreseeable future." – Professor David Waddington, Emeritus Professor in Chemistry Education, University of York, United Kingdom

High Explosives and Propellants - S. Fordham 2013-10-22

High Explosives and Propellants, Second Edition is a four-part book classified into High Explosives, Blasting Accessories, Application of

High Explosives, and Deflagrating and Propellant Explosives. Part I, High Explosives, centers on the general principles, manufacture, design, and assessment of this type of explosive. Part II, Blasting Accessories, describes initiation of explosives and different types of detonators. Part III, Application of High Explosives, deals with the commercial and military applications of high explosives. The last part, Deflagrating and Propellant Explosives, discusses the manufacture, properties, design, and application of propellants.

Propellants and Explosives - Naminosuke Kubota 2015-04-23

This third edition of the classic on the thermochemical aspects of the combustion of propellants and explosives is completely revised and updated and now includes a section on green propellants and offers an up-to-date view of the thermochemical aspects of combustion and corresponding applications. Clearly structured, the first half of the book presents an introduction to pyrodynamics, describing fundamental aspects of the combustion of energetic materials, while the second part highlights applications of energetic materials, such as propellants, explosives and pyrolants, with a focus on the phenomena occurring in rocket motors. Finally, an appendix gives a brief overview of the fundamentals of aerodynamics and heat transfer, which is a prerequisite for the study of pyrodynamics. A detailed reference for readers interested in rocketry or explosives technology.

Fundamentals of Rocket Propulsion - DP Mishra 2017-07-20

The book follows a unified approach to present the basic principles of rocket propulsion in concise and lucid form. This textbook comprises of ten chapters ranging from brief

introduction and elements of rocket propulsion, aerothermodynamics to solid, liquid and hybrid propellant rocket engines with chapter on electrical propulsion. Worked out examples are also provided at the end of chapter for understanding uncertainty analysis. This book is designed and developed as an introductory text on the fundamental aspects of rocket propulsion for both undergraduate and graduate students. It is also aimed towards practicing engineers in the field of space engineering. This comprehensive guide also provides adequate problems for audience to understand intricate aspects of rocket propulsion enabling them to design and develop rocket engines for peaceful purposes.

Pyrotechnic Chemistry - Kenneth Kosanke 2004-01-01

This text is written at an introductory to intermediate level. As such it is intended for readers with limited prior knowledge of chemistry or limited knowledge regarding specific areas of applied pyrotechnics. One goal of this text was to provide an extensive list of references, thus directing readers to sources of additional information. With a total of approximately 400 references that goal has been met; however, for the most part, citations to material that is readily found in numerous reference texts have not been included. Only when the information is attributable to a

limited number of authors are specific references generally cited. The chapters are a collection of 19 papers written by 12 authors, covering most of the important areas of pyrotechnic chemistry. While this format causes the text to be written in styles that differ somewhat from chapter to chapter, it also provides an opportunity to have each of the chapters written by persons with expertise and current knowledge in each of the various subject areas. (Brief bio-graphical information about the authors is included at the end of the preface.) Also, having each subject written as a stand alone chapter, means that a reader wishing information on a specific subject will generally not have to refer to other chapters for the background and ancillary information needed to fully comprehend the subject. Almost all of the chapters have been published previously; however, they were originally written with the intention of being chapters in this text and have been updated since their original publication. The authors of each chapter are identified at the start of each chapter, and the citation for where the material was originally published appears at the end of each chapter. Because most of the chapters have been published previously, and to simplify the task publishing this compilation, in most cases the authors were individually responsible for editing their chapters.