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Seashell Journal Potter Style 2005-02 Whether you spend your time combing the beach for ideas or just dreaming of the shore, this elegant journal is the perfect place to collect your thoughts. Timeless quotes to inspire every journal writer are sprinkled throughout the lined pages. 160 pages (lined), 5 x7 inches, perfect bound with a removable belly band

The New Weibull Handbook Robert B. Abernethy 1996 This handbook will provide an understanding of standard and advanced Weibull and Log Normal techniques originally developed for failure analysis.

Concrete Technology Adam M. Neville 2010 The success of any concrete structure depends on the designer's sound knowledge of concrete and its behaviour under load, under temperature and humidity changes, and under exposure to the relevant environment and industrial conditions. This book gives students a thorough understanding of all aspects of concrete technology from first principles. It covers concrete ingredients, properties and behaviour in the finished structure with reference to national standards and recognised testing methods used in Britain, the European Union and the United States. Examples and problems are given throughout to emphasise the important aspects of each chapter. An excellent coursebook for all students of Civil Engineering, Structural Engineering and Building at degree or diploma level, Concrete Technology will also be a valuable reference book for practising engineers in the field.

Novel Bioderived Composites from Wastes Andrea Petrella 2020-11-20 The recovery of solid wastes for the preparation of innovative composite materials not only represents an economic advantage, but also offers an ecological opportunity for the utilization of by-products which would otherwise be landfilled. Specifically, the reuse and recycling of waste lead to important savings of raw materials and energy, since these by-products, generally deriv from agricultural or industrial activities, are abundant in nature. Moreover, a reduction of the environmental and related sanitary impacts can be also achieved. For this reason, a recycling operation is fundamental for the improvement of the environmental sustainability, because these secondary raw materials become a resource that can be easily reused without the modification of the peculiar characteristics, in order to obtain new and performing composites, with a low specific weight, high durability, and long life cycle.

Geopolymer Chemistry and Applications Joseph Davidovits 2011 What can be done about the major concerns of our Global Economy on energy, global warming, sustainable development, user-friendly processes, and green chemistry? Here is an important contribution to the mastering of these phenomena today. Written by Joseph Davidovits, the inventor and founder of geopolymer science, it is an introduction to the subject for the newcomers, students, engineers and professionals. You will find science, chemistry, formulas and very practical information (including patents' excerpts) covering: - The mineral polymer concept: silicones and geopolymers, - Macromolecular structure of natural silicates and aluminosilicates, - Scientific Tools, X-rays, FTIR, NMR, - The synthesis of mineral geopolymers, Poly(siloxonate) and polysilicate, soluble silicate, Chemistry of (Na, K)-oligo-sialates: hydrous alumino-silicate gels and zeolites, Kaolinite / Hydrosodalite-based geopolymer, Metakaolin MK-750-based geopolymer, Calcium-based geopolymer, Rock-based geopolymer, Silica-based geopolymer, Fly ash-based geopolymer, Phosphate-based geopolymer, Organic-mineral geopolymer, - Properties: physical, chemical and long-term durability, - Applications: Quality controls, Development of user-friendly systems, Castable geopolymer, industrial and decorative applications, Geopolymer / fiber composites, Foamed geopolymer, Geopolymers in ceramic processing, Manufacture of geopolymer cement, Geopolymer concrete, Geopolymers in toxic and radioactive waste management. It is a textbook, a reference book instead of being a collection of scientific papers. Each chapter is followed by a bibliography of the relevant published literature including 80 patents, 125 tables, 363 figures, 560 references, 720 authors cited, representing the most up to date contributions of the scientific community. The industrial applications of geopolymers with engineering procedures and design of processes are also covered in this book

Concrete in the Service of Mankind Ravindra Dhir 1996-06-13 This fourth volume of Concrete in the Service of Mankind focuses on radical concrete technology. Concrete is ubiquitous and unique, and is found in every developed and developing country. Indeed, there are no alternatives to concrete as a volume construction material for infrastructure. This raises important questions of how concrete should be designed and constructed for cost effective use in the the short and long term, and to encourage further radical development. Equally, it must be environmentally friendly during manufacture, in an aesthetic presentation in structures and in the containment of harmful materials. This book should be of interest to concrete technologists; contractors; civil engineers; consultants; government agencies; research organizations.

ACI 546R-14 Guide to Concrete Repair American Concrete Institute 2014

Advances in Cement Analysis and Concrete Petrography Derek Cong 2019

Calcium Sulfoaluminate Cements Keith Quillin 2010-11-04 Manufacture of calcium sulfoaluminate (CSA) cements requires less energy than conventional Portland cements and produces lower carbon dioxide emissions. This report presents background information on these cements, and reports on practical work to assess their performance in concrete. It demonstrates that CSA cements can be used to produce durable concrete with physical properties comparable to equivalent Portland cement concrete. The research has aimed to balance environmental impact, cost and physical properties and has investigated two main aspects: blends of CSA cement with materials such as ground granulated blastfurnace slag and calcium sulfate, which have been found to have good physical properties and to be suitable for use in precast concrete manufacture;

and CSA cement with a high iron content allowing a wider range of raw materials to be used in manufacture.

Construction Materials Manuel Bustillo Revuelta 2021-03-02 Construction Materials is a comprehensive textbook covering all raw materials and products related to the construction processes, and not only those applied to building structures. The book is organized to help readers achieve competent knowledge about construction materials. At the beginning of the book the author offers the general concepts, definitions, and standards adopted worldwide for these materials to be used along the book. The central part of the text covers the primary construction materials required to manufacture concrete and mortars, the most relevant construction materials in the last century. Expressly, concrete and mortar are treated in detail in dedicated chapters per component. In addition, the author addresses other relevant materials in construction such as ceramic materials, metals and alloys, bituminous materials, and geosynthetic materials. Finally, since the construction industry is one of the largest single waste producing sector in the world, the last chapter outlines the main types and characteristics of construction and demolition waste (e.g. recycled aggregates). The book appeals to students but also professionals interested in construction materials and construction and civil engineering.

Production Methods and Workability of Concrete P.J.M. Bartos 2004-06-02 Practical production of ordinary and special, high performance concretes and their behaviour and properties when fresh are the main themes of this book. It derives from the International RILEM Conference held in Paisley, Scotland in June 1996, and represents the culmination of the work of two RILEM Technical Committees (145 WSM Workability of Special Mixes, and 150 ECM Efficiency of Concrete Mixers). Very significant advances have been made recently in the development of concrete with outstanding properties. Such advances in research must be matched by progress in the technology of concrete production. This book focuses on production methods and on workability and handling, two fundamental and closely linked stages of the concrete construction process. It has a strongly practical emphasis, with many contributions showing how to build effectively using the many high performance concretes which have progressed from research into construction in recent years. The main themes covered are: production mixers and mixing processes; production methods; sprayed and very dry precasting mixes; fibre reinforced concrete; flowing and superfluid mixes; rheology; test methods; mix design and models; special cements and concretes.

Concrete and Masonry Movements Jeffrey Brooks 2014-08-23 Widely used in the construction of bridges, dams and pavements, concrete and masonry are two of the world's most utilized construction materials. However, many engineers lack a proper understanding of the methods for predicting and mitigating their movements within a structure. Concrete and Masonry Movements provides practical methods for predicting and preventing movement in concrete and masonry, saving time and money in retrofitting and repair cost. With this book in hand, engineers will discover new prediction models for masonry such as: irreversible moisture expansion of clay bricks, elasticity, creep and shrinkage. In addition, the book provides up-to-date information on the codes of practice. Provides mathematical modelling tools for predicting movement in masonry Up-to-date knowledge of codes of practice methods Clearly explains the factors influencing all types of concrete and masonry movement Fully worked out examples and set problems are included at the end of each chapter

Pavement Management Guide 2012 " The anticipated primary audience for this

guide is pavement management staff in the state departments of transportation. It is anticipated that most of the users of this guide will view it as a resource to address particular issues or concerns that arise as agencies face the challenges associated with managing pavements effectively. The guide's organization by pavement management components and functions should help support this use. However, the guide may also be used to assist those seeking general knowledge of pavement management concepts. Since pavement management is not a subject normally included in a civil engineering college curriculum, it is hoped that the structure of the guide will support this use as well. Pavement management is used to assess and justify funding needs for pavement preservation and rehabilitation, and to help set attainable pavement-related performance goals. These successes illustrate that when reliable technical information is presented effectively, it can go a long way towards overcoming the institutional issues that threaten the use of innovative and cost-effective strategies." -- publisher's description

International RILEM Conference on Early-Age and Long-Term Cracking in RC Structures Fragkoulis Kanavaris 2021-05-18 This volume gathers the latest advances, innovations and applications in the field of crack control in concrete, as presented by leading international researchers and engineers at the International RILEM Conference on Early-age and Long-term Cracking in RC Structures (CRC 2021), held in Paris, France on April 9, 2021. It covers early-age and long-term imposed deformations in concrete, analytical formulations for calculating crack widths in concrete, numerical simulations of early-age and long-term restrained behaviour of concrete elements, experimental investigations on cracking, on-site monitoring of imposed deformations and cracking, crack control and repair, and sustainability of design and remediation. The conference demonstrated that a comprehensive approach to this problem requires the design of robust experimental techniques, the development of multiscale models and the evaluation of code-based and other analytical approaches relevant to crack control in concrete. The contributions, which were selected through a rigorous international peer-review process, share exciting ideas that will spur novel research directions and foster new multidisciplinary collaborations.

Carbon Dioxide Sequestration in Cementitious Construction Materials Fernando Pacheco-Torgal 2018-05-18 Carbon Dioxide Sequestration in Cementitious Construction Materials provides an updated, state-of-the-art review on the development of cementitious construction materials based on carbon dioxide storage, which will have a major eco-efficient and economic benefit for the construction industry. Key chapters include methods for the assessment of carbon dioxide absorbed by cementitious materials, air and water-based carbon dioxide storage, carbon dioxide storage modeling, carbonation mechanisms, carbon dioxide storage on recycled aggregates, calcium, sodium and magnesium-based binders, properties and the durability of carbon dioxide based concrete. Promotes the importance of CO2 storage in carbonation of these materials, especially reincorporation of CO2 during fabrication Discusses a wide range of cementitious materials with CO2 storage capabilities Features redesign of cementation mechanisms to utilize CO2 during fabrication

Alkali Activated Materials John L. Provis 2013-11-19 This is a State of the Art Report resulting from the work of RILEM Technical Committee 224-AAM in the period 2007-2013. The Report summarises research to date in the area of alkali-activated binders and concretes, with a particular focus on the following areas: binder design and characterisation, durability testing,

commercialisation, standardisation, and providing a historical context for this rapidly-growing research field.

Handbook of Alkali-Activated Cements, Mortars and Concretes Fernando Pacheco-Torgal 2014-11-20 This book provides an updated state-of-the-art review on new developments in alkali-activation. The main binder of concrete, Portland cement, represents almost 80% of the total CO2 emissions of concrete which are about 6 to 7% of the Planet's total CO2 emissions. This is particularly serious in the current context of climate change and it could get even worse because the demand for Portland cement is expected to increase by almost 200% by 2050 from 2010 levels, reaching 6000 million tons/year. Alkali-activated binders represent an alternative to Portland cement having higher durability and a lower CO2 footprint. Reviews the chemistry, mix design, manufacture and properties of alkali-activated cement-based concrete binders Considers performance in adverse environmental conditions. Offers equal emphasis on the science behind the technology and its use in civil engineering.

Polymer Concretes Mostafa Hassani Niaki 2022-12-30 Polymer Concretes: Advanced Construction Materials provides a comprehensive study on polymer concrete (PC), discussing historical perspectives of its use, the classification and applications of PC, and the advantages and disadvantages of its use. Materials such as resin, aggregates, micro fillers, fibers, and nanofillers are systematically summarized, as well as their effects on PC. Also examined are the properties, fabrication methods, and the standards for testing the material properties, as well as the future outlook for PC applications. This book: Investigates the various properties of PC Covers the physical, mechanical, thermal, chemical, electrical, and environmental properties of PC Examines fabrication methods, standards for testing, and the future outlook for various applications The book is ideal for students taking related courses in Civil, Mechanical, Chemical, and Material Engineering. It also serves as a useful guide for researchers in the areas of concrete and construction materials, composites and nanocomposites, and advanced materials, as well as professionals working in fields such as construction, precast concrete products manufacture, transportation and road construction, architecture, and more.

Guide for Modeling and Calculating Shrinkage and Creep in Hardened Concrete 2008-01-01

Condensed Silica Fume Pierre-Claude Aïtcin 1983

International Congress on Polymers in Concrete (ICPIC 2018) Mahmoud M. Reda Taha 2018-04-06 This volume collects the proceedings from the International Congress of Polymers in Concrete 2018 (ICPIC), held under the theme "Polymers for Resilient and Sustainable Concrete Infrastructure." ICPIC 2018 provides an opportunity for researchers and specialists working in the fields of polymers to exchange ideas and follow the latest progress in the use of polymers in concrete infrastructure. It also showcases the use of polymers and polymer concrete in sustainable and resilient development, and provides a platform for local and overseas suppliers, developers, manufacturers and contractors using polymers, polymer concrete and polymer composites in concrete structures to develop new business opportunities and follow the latest developments in the field. The International Congress of Polymers in Concrete is an international forum that has taken place every three years for the last 40 years with the objective of following progress in the field of polymers and their use in concrete and construction. Following 15 successful congresses held in London

(1975), Austin (1978), Koriyama (1981), Darmstadt (1984), Brighton (1987), Shanghai (1990), Moscow (1992), Oostende (1995), Bologna (1998), Honolulu (2001), Berlin (2004), Chuncheon (2007), Funchal (2010), Shanghai (2013) and Singapore (2015), the 16th ICPIC will take place in Washington, DC, from April 29 to May 1st, 2018.

Interfacial Transition Zone in Concrete J.C. Maso 2004-03-01 An important new state-of-the-art report prepared by RILEM Technical Committee 108 ICC. It has been written by a team of leading international experts from the UK, USA, Canada, Israel, Germany, Denmark, South Africa, Italy and France. Research studies over recent years in the field of cement science have focused on the behaviour of the interfaces between the components of cement-based materials. The techniques used in other areas of materials science are being applied to the complex materials found in cements and concretes, and this book provides a significant survey of the present state of the art.

Handbook of Polymer-Modified Concrete and Mortars Yoshihiko Ohama 1995-12-31 Mortar and concrete made with portland cement has been a popular construction material in the world for the past 170 years or more. However, cement mortar and concrete have some disadvantages such as delayed hardening, low tensile strength, large drying shrinkage and low chemical resistance. To reduce these disadvantages, polymers have been utilized as an additive. Polymer-modified or polymer cement mortar (PCM) and concrete (PCC) are the materials which are made by partially replacing the cement hydrate binders of conventional cement mortar or concrete, with polymers. This book deals with the principles of polymer modification for cement composites, the process technology, properties and applications of the polymer-modified mortar and concrete, and special polymer-modified systems such as M DF cement, antiwashout underwater concrete, polymer-ferrocement, and artificial I wood. The polymeric admixtures or cement modifiers include latexes or emulsions, redispersible polymer powders, water-soluble polymers, liquid resins and monomers. This book describes the current knowledge and information of polymer-modified mortars and concretes, and discusses or reviews the following items in detail: 1. Principles of polymer modification for cement composites. 2. Process technology of polymer-modified mortars and concretes. 3. Properties of polymer-modified mortars and concretes. 4. Applications of polymer-modified mortars and concretes. 5. Special polymer-modified systems such as MDF cements, antiwashout underwater concretes, polymer-ferrocements, and artificial woods.

Creep and Shrinkage of Concrete Z. P. Bažant 1993-01-01 Presents the proceedings of the 5th RILEM International Symposium, held in Barcelona in September 1993. The papers discuss creep and shrinkage of concrete, and should be of interest to cement and concrete technologists and researchers, as well as structural engineers.

Proceedings of the 2nd International Workshop on Design in Civil and Environmental Engineering Mary Kathryn Thompson 2013-09-24

Waste Materials and By-Products in Concrete Rafat Siddique 2007-11-13 The amount and variety of waste that humanity dumps in landfill sites is nothing short of a scandal, believes Rafat Siddique, of Deemed University in Patiala, India. Instead, we ought to be building new homes out of it! Siddique shows in this important book that many non-hazardous waste materials and by-products which are landfilled, can in fact be used in making concrete and similar construction materials.

Engineered Cementitious Composites (ECC) Victor C. Li 2019-04-30 This is the first book on Engineered Cementitious Composites (ECC), an advanced concrete material attracting world-wide attention in both the academic community and in industry. The book presents a comprehensive coverage of the material design methodology, processing methodology, mechanical and durability properties, smart functions, and application case studies. It combines effective use of illustrations, graphical data, and tables. It de-emphasizes mathematics in favor of physical understanding. The book serves as an introduction to the subject matter, or as a reference to those conducting research in ECC. It will also be valuable to engineers who need to quickly search for relevant information in a single comprehensive text.

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects United States. Federal Highway Administration 1985

Sustainable Construction Materials Ravindra K. Dhir OBE 2016-10-26 Sustainable Construction Materials: Sewage Sludge Ash, part of a series of five, aims to promote the use of sustainable construction materials. It is different from the norm, with its uniqueness lying in the development of a data matrix sourced from over 600 publications and contributed by 1107 authors from 442 institutions in 48 countries from 1970 to 2016, all focusing on the subject of sewage sludge ash as a construction material, and systematically analyzing, evaluating, and modeling the information for use in cement, concrete, ceramics, geotechnics, and road pavement applications. Related environmental issues, case studies, and standards are also discussed. The book helps users avoid repetitive research and save valuable resources, giving them more latitude to explore new research to progress the use of sustainable construction materials. It is structured in an incisive and easy to digest manner. As an excellent reference source, the book is particularly suited for researchers, academics, design engineers, specifiers, contractors, developers, and certifying and regulatory authorities who seek to promote sustainability within the construction sector. Provides an extensive source of valuable database information supported by an exhaustive and comprehensively organized list of globally published literature spanning 40-50 years, up to 2016, with 5000 references Offers an analysis, evaluation, repackaging, and modeling of existing knowledge, encouraging more responsible use of waste materials in construction Presents a wealth of knowledge for use in many sectors relating to the construction profession

Guide to the Selection and Use of Hydraulic Cements American Concrete Institute 1999

Journal of Protective Coatings & Linings 2009

Handbook of Smart Materials, Technologies, and Devices Chaudhery Mustansar Hussain 2022-12-11 This handbook brings together technical expertise, conceptual background, applications, and societal aspects of Industry 4.0: the evolution of automation and data exchange in fabrication technologies, materials processing, and device manufacturing at both experimental and theoretical model scales. The book assembles all the aspects of Industry 4.0, starting from the emergence of the concept to the consequences of its progression. Drawing on expert contributors from around the world, the volume details the technologies that sparked the fourth revolution and illustrates their characteristics, potential, and methods of use in the industrial and societal domains. In addition, important topics such as ethics, privacy and

security are considered in a reality where all data is shared and saved remotely. The collection of contribution serve a very broad audience working in the fields of science and engineering, chemical engineering, materials science, nanotechnology, energy, environment, green chemistry, sustainability, electrical and electronic engineering, solid-state physics, surface science, aerosol technology, chemistry, colloid science, device engineering, and computer technology. This handbook ideal reference libraries in universities and industrial institutions, government and independent institutes, individual research groups and scientists.

The Greenbook Public Works Standards Inc 2012-01-20 This unique book gives approved standards for all types of public works construction - from the depth of paving on roads to the adhesive used on pavement markers. The "Greenbook" standardizes public works plans and specs to provide guidelines for both cities and contractors so they can agree on construction practices used in public works and has been adopted by over 200 cities, counties, and agencies throughout the U.S. This 2012 Edition is the 16th edition, which is updated and republished every three years. In each of the two years between publication of a new Greenbook edition, the changes which have been researched and approved by the committee during the preceding year, are published in pamphlet form as amendments to the current edition. This program maintains a "living" document in public works specifications. Stripes in the margin of each new edition point out significant changes in the text adopted since the preceding edition.

Cement; Lime; Gypsum American society for testing and materials 1997

The Use of Limestone in Portland Cement Rachel Jean Detwiler 1996

Annual Book of ASTM Standards American Society for Testing and Materials 1987 Index to ASTM standards issued as last part of each vol.

Carbon Dioxide Mineralization and Utilization Pen-Chi Chiang 2017-03-04 This book focuses on an important technology for mineralizing and utilizing CO2 instead of releasing it into the atmosphere. CO2 mineralization and utilization demonstrated in the waste-to-resource supply chain can “reduce carbon dependency, promote resource and energy efficiency, and lessen environmental quality degradation,” thereby reducing environmental risks and increasing economic benefits towards Sustainable Development Goals (SDG). In this book, comprehensive information on CO2 mineralization and utilization via accelerated carbonation technology from theoretical and practical considerations was presented in 20 Chapters. It first introduces the concept of the carbon cycle from the thermodynamic point of view and then discusses principles and applications regarding environmental impact assessment of carbon capture, storage and utilization technologies. After that, it describes the theoretical and practical considerations for “Accelerated Carbonation (Mineralization)” including analytical methods, and systematically presents the carbonation mechanism and modeling (process chemistry, reaction kinetics and mass transfer) and system analysis (design and analysis of experiments, life cycle assessment and cost benefit analysis). It then provides physico-chemical properties of different types of feedstock for CO2 mineralization and then explores the valorization of carbonated products as green materials. Lastly, an integral approach for waste treatment and resource recovery is introduced, and the carbonation system is critically assessed and optimized based on engineering, environmental, and economic (3E) analysis. The book is a valuable resource for readers who take scientific and practical interests in the current and future

Accelerated Carbonation Technology for CO2 Mineralization and Utilization.

Concrete in the Marine Environment P.K. Mehta 1991-12-03 Concrete has clearly emerged as the most economical and durable material for the building of the vast majority of marine structures. Reinforced concrete too has overcome the technological problems making it a suitable material for the construction of advanced marine structures such as offshore drilling platforms, superspan bridges and undersea tunn

Magnesia Cements Mark Shand 2020-05-30 There is an urgent need for innovative, cost-effective, and sustainable approaches to reduce the tremendous environmental impact of conventional cement and cement-based technologies. Consuming a significantly lower quantity of natural resources than conventional cements, with the added ability to effectively sequestering carbon, magnesia cements offer great potential in this area. Magnesia Cements: From Formulation to Application explores the latest developments in this exciting area, reviewing the unique properties offered by these cements, including superior strength, fire resistance, and exceptional ability to bond to a wide range of aggregates, and highlighting their potential role in making cement production and usage more sustainable. Providing detailed analysis of the chemistry, properties, manufacture, and both traditional and novel applications, Magnesia Cements: From Formulation to Application is ideally suited for materials scientists, cement chemists, ceramicists, and engineers involved with the design, development, application and impact assessment of magnesia cements across both academia and industry. Provides formulary information research into more environmentally friendly cement systems Discusses chemical phase analysis and the impact of formulation Applies analysis and history of global uses to provide support for future environmentally stable industrial, building, and non-building applications

Alkali-Activated Cements and Concretes Caijun Shi 2006-05-10 The first English-language book which reviews and summarizes worldwide research advances in alkali-activated cements and concrete. Essential topics include: raw materials and their properties for the production of the two new types of binder the hydration and microstructure development of alkali-activated slag cements the mechanical properties and durability of alkali-activated slag cement and concrete other various cementing systems and their applications related standards and specifications. This respected team of authors has produced an important piece of research that will be of great interest to professionals and academics alike, enabling the production of more durable and environmentally sensitive materials.