

Mineral Commodity Summaries 2017 U S Government Bookstore

Our digital world is often described using terms such as immateriality and virtuality. The discourse of cloud computing is the latest in a long line of nebulous, dematerialising tropes which have come to dominate how we think about information and communication technologies. Digital Media Ecologies argues that such rhetoric is highly misleading, and that engaging with the key cultural, agential, ethical and political impacts of contemporary media requires that we do not just engage with the surface level of content encountered by the end users of digital media, but that we must additionally consider the affordances of software and hardware. Whilst numerous existing approaches explore content, software and hardware individually, Digital Media Ecologies provides a critical intervention by insisting that addressing contemporary technoculture requires a synthetic approach that traverses these three registers. Digital Media Ecologies re-envisions the methodological approach of media ecology to go beyond the metaphor of a symbolic information environment that exists alongside a material world of tantalum, turtles and tornados. It illustrates the social, cultural, political and environmental impacts of contemporary media assemblages through examples that include mining conflict-sustaining minerals, climate change blogging, iOS jailbreaking, and the ecological footprint of contemporary computing infrastructures. Alongside foregrounding the deleterious social and environmental impacts of digital technologies, the book considers numerous ways that these issues are being tackled by a heterogeneous array of activists, academics, hackers, scientists and citizens using the same technological assemblages that ostensibly cause these problems.

As the importance and dependence of specific mineral commodities increase, so does concern about their supply. The United States is currently 100 percent reliant on foreign sources for 20 mineral commodities and imports the majority of its supply of more than 50 mineral commodities. Mineral commodities that have important uses and face potential supply disruption are critical to American economic and national security. However, a mineral commodity's importance and the nature of its supply chain can change with time; a mineral commodity that may not have been considered critical 25 years ago may be critical today, and one considered critical today may not be so in the future. The U.S. Geological Survey has produced this volume to describe a select group of mineral commodities currently critical to our economy and security. For each mineral commodity covered, the authors provide a comprehensive look at (1) the commodity's use; (2) the geology and global distribution of the mineral deposit types that account for the present and possible future supply of the commodity; (3) the current status of production, reserves, and resources in the United States and globally; and (4) environmental considerations related to the commodity's production from different types of mineral deposits. The volume describes U.S. critical mineral resources in a global context, for no country can be self-sufficient for all its mineral commodity needs, and the United States will always rely on global mineral commodity supply chains. This volume provides the scientific understanding of critical mineral resources required for informed decisionmaking by those responsible for ensuring that the United States has a secure and sustainable supply of mineral commodities.

Water risks, including the lack of access to fresh water for personal and industrial use, droughts, floods, and water contamination, are problems that are not new, yet, they are amplifying in the face of climate change, population growth, and rapid economic development. Properly identifying, measuring, and managing these risks as well as taking advantage of related mitigation opportunities is essential for the future well-being of firms across various industries, investors who invest in these firms, local and federal governments, and ultimately

our society as a whole. This edited book sheds light on this topic by examining the unique measurement and modelling challenges associated with either the scarcity or overabundance of water and their interaction with finance and society. Specifically, it explores approaches to assess and operationalize water risk, examines the vulnerability of institutions and markets, and discusses strategies for risk mitigation. Thomas Walker is Professor of Finance and Concordia University Research Chair in Emerging Risk Management at Concordia University, Montreal, Canada. Prior to academia, he worked for several years in the German consulting and industrial sector at Mercedes Benz, Utility Consultants International, Lahmeyer International, Telenet, and KPMG Peat Marwick. Dieter Gramlich is Professor of Banking & Finance at DHBW Baden-Wuerttemberg Cooperative State University in Heidenheim, Germany, where he serves as Head of the Banking Department. He previously studied at the University of Mannheim and was an interim professor and Chair of Banking and Finance at the University of Halle in Germany. Kalima Vico is a research associate at the Emerging Risks Information Centre (ERIC) at Concordia University, Montreal, Canada. She previously worked for Concordias David OBrien Centre for Sustainable Enterprise. Adele Dumont-Bergeron is an MA student in English literature and creative writing at Concordia University, Montreal, Canada. She currently serves as a research associate at the Emerging Risks Information Centre.

Mineral Commodities Summary 2018

Minerals are part of virtually every product we use. Common examples include copper used in electrical wiring and titanium used to make airplane frames and paint pigments. The Information Age has ushered in a number of new mineral uses in a number of products including cell phones (e.g., tantalum) and liquid crystal displays (e.g., indium). For some minerals, such as the platinum group metals used to make catalytic converters in cars, there is no substitute. If the supply of any given mineral were to become restricted, consumers and sectors of the U.S. economy could be significantly affected. Risks to minerals supplies can include a sudden increase in demand or the possibility that natural ores can be exhausted or become too difficult to extract. Minerals are more vulnerable to supply restrictions if they come from a limited number of mines, mining companies, or nations. Baseline information on minerals is currently collected at the federal level, but no established methodology has existed to identify potentially critical minerals. This book develops such a methodology and suggests an enhanced federal initiative to collect and analyze the additional data needed to support this type of tool.

Contents Simone Pollastri, Lara Gigli, Paolo Ferretti, Giovanni B. Andreozzi, Nicola Bursi Gandolfi, Kilian Pollok, Alessandro F. Gualtieri - The crystal structure of mineral fibres. 3. Actinolite asbestos Dmitry A. Chebotarev, Anna G. Doroshkevich, Reiner Klemd, Nikolay S. Karmanov - Evolution of Nb-mineralization in the Chuktukon carbonatite massif, Chadobets upland (Krasnoyarsk Territory, Russia) Nicola Mondillo, Giuseppina Balassone, Maria Boni, Antonio Marino, Giuseppe Arfè - Evaluation of the amount of rare earth elements -REE in the Silius fluorite vein system (SE Sardinia, Italy). Fuat Yavuz and Zeynep Döner - WinAmptb: A Windows program for calcic amphibole thermobarometry Marcella Di Bella, Francesco Italiano, Davide Romano, Alessandro Tripodo, Giuseppe Sabatino - Geochemistry and tectonic setting of triassic magmatism from the Lercara Basin (Sicily, Italy) Silvio Mollo, Francesco Vetere, Harald Beherens, Vanni Tecchiato, Antonio Langone, Piergiorgio Scarlato, Diego Perugini - The effect of degassing and volatile exsolution on the composition of a trachybasaltic melt decompressed at slow and fast rates

Phosphoric acid is an important industrial acid that is utilized for manufacturing phosphatic fertilizers and industrial products, for pickling and posterior treatment of steel surfaces to prevent corrosion, for ensuring appropriate paint adhesion, and for the food and beverages industry, e.g., cola-type drinks to impart taste and slight acidity and to avoid iron sedimentation.

This industry is spread out in countries of four continents - Asia, Africa, America, and Europe - which operate mines and production plants and produce fertilizers. Phosacid is one of the most widely known acids. The global phosacid market and its many phosphate derivatives are expanding worldwide; this trend is expected to continue in the next years, thus producing innovative products.

Clays are increasingly becoming a major problem in the mining, extraction and value-adding processes for a wide range of commodity raw materials. Clays can impact negatively on virtually every unit process within the mining and minerals processing sector, having long-term environmental implications that go well beyond the lifetime of the mining operation. This book is the first to compile, explain and evaluate the effects of clays in the mineral processing value chain, from mining to minerals processing, and finally, tailings disposal. Focusing on topics from the chemistry and rheology of clays to their detection and dissolution behaviour, this book provides comprehensive coverage of the effects on processes such as settling, preg-robing, flotation and comminution. It is an excellent reference for professional mineralogists and geologists, industrial engineers, and researchers interested in clays and clay minerals.

Mineral Commodity Summaries 2019

This report examines the role of rare earth metals and other materials in the clean energy economy. It was prepared by the U.S. Department of Energy (DoE) based on data collected and research performed during 2010. In the report, DoE describes plans to: (1) develop its first integrated research agenda addressing critical materials, building on three technical workshops convened by the DoE during November and December 2010; (2) strengthen its capacity for information-gathering on this topic; and (3) work closely with international partners, including Japan and Europe, to reduce vulnerability to supply disruptions and address critical material needs. Charts and tables. This is a print on demand report.

Toxic production, disrupted lives and contaminated bodies. Care for unacknowledged suffering, incurable cancers, and immeasurable losses. This book bears witness to the invisible disasters provoked by the asbestos market worldwide and gives a voice to the communities of survivors who struggle daily in the name of social and environmental justice. Grounded in a profound, touching ethnography, this book offers an original contribution to understanding global health disasters and grassroots health-based activism.

The Office of Industrial Technologies (OIT) of the U. S. Department of Energy commissioned the National Research Council (NRC) to undertake a study on required technologies for the Mining Industries of the Future Program to complement information provided to the program by the National Mining Association. Subsequently, the National Institute for Occupational Safety and Health also became a sponsor of this study, and the Statement of Task was expanded to include health and safety. The overall objectives of this study are: (a) to review available information on the U.S. mining industry; (b) to identify critical research and development needs related to the exploration, mining, and

processing of coal, minerals, and metals; and (c) to examine the federal contribution to research and development in mining processes.

Written for students and professionals, this revised textbook surveys the mineral industry from geological, environmental and economic perspectives. Thoroughly updated, the text includes a new chapter on technology industry metals as well as separate chapters on mineral economics and environmental geochemistry. Carefully designed figures simplify difficult concepts and show the location of important deposits and trade patterns, emphasizing the true global nature of mineral resources. Featuring boxes highlighting special interest topics, the text equips students with the skills they need to contribute to the energy and mineral questions currently facing society, including issues regarding oil pipelines, nuclear power plants, water availability and new mining locations. Technical terms are highlighted when first used, and references are included to allow students to delve more deeply into areas of interest. Multiple choice and short answer questions are provided for instructors online at www.cambridge.org/kesler to complete the teaching package.

This illustrated report is published annually to furnish estimates covering nonfuel mineral industry data. Data sheets contain information on the domestic industry structure, Government programs, tariffs, and 5-year salient statistics for more than 90 individual minerals and materials. Each chapter includes information on events, trends, and issues for each mineral commodity, as well as discussions and tabular presentations on domestic industry structure. Maps, charts, presentations, tables, and graphs are included throughout this text.

Geoscientists, petroleum engineers, global community traders, construction industry engineering executives soil scientists, miners, economists, trade brokers specializing in mineral commodities and imports/exports, mineral manufacturers, statistical professionals, and American citizens may be interested in this updated historical reference. Students pursuing coursework for a Bachelor of Science or advanced degree in environmental science, geosciences, or geology may be interested in this volume for research. It is highly recommended that academic libraries with geology and mining engineering programs, special libraries within these fields, and public libraries place an updated annual copy of this primary source work in their business/economic and reference collections.

Monika Huraiová, Patrik Konečný, Ivan Holický, Stanislava Milovská, Ondrej Nemec, Vratislav Hurai - Mineralogy and origin of peralkaline granite-syenite nodules ejected in Pleistocene basalt from Bulhary, southern Slovakia
 Laura Medeghini and Lorenzo Nigro - Khirbet al-Batrawy ceramics: a systematic mineralogical and petrographic study for investigating the material culture
 Liam A. Bullock, Ralf Gertisser, Brian O'Driscoll - Spherulite formation in obsidian lavas in the Aeolian Islands, Italy
 Simone Pollastri, Natale Perchiazzi, Lara Gigli, Paolo Ferretti, Alessandro Cavallo, Nicola Bursi Gandolfi, Kilian Pollok, Alessandro F. Gualtieri - The crystal structure of mineral fibers. 2. Amosite and fibrous anthophyllite
 Nima Nezafati and Morteza Hessari - Tappeh Shoghali; A

signifiant early silver production site in North Central Iran Shanke Liu, Jiaju Li, Jianming Liu -An updated model of Rietveld structure refinement of Na/-feldspar This volume in the "Advances in Electrochemical Sciences and Engineering" series focuses on problem-solving, illustrating how to translate basic science into engineering solutions. The book's concept is to bring together engineering solutions across the range of nano-bio-photo-micro applications, with each chapter co-authored by an academic and an industrial expert whose collaboration led to reusable methods that are relevant beyond their initial use. Examples of experimental and/or computational methods are used throughout to facilitate the task of moving atomistic-scale discoveries and understanding toward well-engineered products and processes based on electrochemical phenomena.

Developments in the Formulation and Reinforcement of Concrete, Second Edition, presents the latest developments on topics covered in the first edition. In addition, it includes new chapters on supplementary cementitious materials, mass concrete, the sustainability of concrete, service life prediction, limestone cements, the corrosion of steel in concrete, alkali-aggregate reactions, and concrete as a multiscale material. The book's chapters introduce the reader to some of the most important issues facing today's concrete industry. With its distinguished editor and international team of contributors, users will find this to be a must-have reference for civil and structural engineers. Summarizes a wealth of recent research on structural concrete, including material microstructure, concrete types, and variation and construction techniques Emphasizes concrete mixture design and applications in civil and structural engineering Reviews modern concrete materials and novel construction systems, such as the precast industry and structures requiring high-performance concrete

To best serve current and future generations, infrastructure needs to be resilient to the changing world while using limited resources in a sustainable manner. Research on and funding towards sustainability and resilience are growing rapidly, and significant research is being carried out at a number of institutions and centers worldwide. This handbook brings together current research on sustainable and resilient infrastructure and, in particular, stresses the fundamental nexus between sustainability and resilience. It aims to coalesce work from a large and diverse group of contributors across a wide range of disciplines including engineering, technology and informatics, urban planning, public policy, economics, and finance. Not only does it present a theoretical formulation of sustainability and resilience but it also demonstrates how these ideals can be realized in practice. This work will provide a reference text to students and scholars of a number of disciplines.

America needs better options for resolving potential crises In recent years, the Pentagon has elevated its concerns about Russia and China as potential military threats to the United States and its allies. But what issues could provoke actual conflict between the United States and either country? And how could such a conflict be contained before it took the world to the brink of thermonuclear

catastrophe, as was feared during the cold war? Defense expert Michael O'Hanlon wrestles with these questions in this insightful book, setting them within the broader context of hegemonic change and today's version of great-power competition. The book examines how a local crisis could escalate into a broader and much more dangerous threat to peace. What if, for example, Russia's "little green men" seized control of a community, like Narva or an even smaller town in Estonia, now a NATO ally? Or, what if China seized one of the uninhabited Senkaku islands now claimed and administered by Japan, or imposed a partial blockade of Taiwan? Such threats are not necessarily imminent, but they are far from inconceivable. Washington could be forced to choose, in these and similar cases, between risking major war to reverse the aggression, and appeasing China or Russia in ways that could jeopardize the broader global order. O'Hanlon argues that the United States needs a better range of options for dealing with such risks to peace. He advocates "integrated deterrence," which combines military elements with economic warfare. The military components would feature strengthened forward defenses as well as, possibly, limited military options against Russian or Chinese assets in other theaters. Economic warfare would include offensive elements, notably sanctions, as well as measures to ensure the resilience of the United States and allies against possible enemy reprisal. The goal is to deter war through a credible set of responses that are more commensurate than existing policy with the stakes involved in such scenarios.

50 stunning maps reveal our globalized world like never before Explore how cities are expanding beyond the reach of their nations, uncover the ways bananas, cobalt and water bottles link the most unlikely of places, and discover how modern phenomena such as messenger apps and sharing platforms are changing not just our interactions, but how we interconnect. Globalography uncovers the myriad ways we can now connect with one another and in doing so, showcases the radical way globalization is transforming our world.

This book surveys state-of-the-art research on and developments in lithium-ion batteries for hybrid and electric vehicles. It summarizes their features in terms of performance, cost, service life, management, charging facilities, and safety. Vehicle electrification is now commonly accepted as a means of reducing fossil-fuels consumption and air pollution. At present, every electric vehicle on the road is powered by a lithium-ion battery. Currently, batteries based on lithium-ion technology are ranked first in terms of performance, reliability and safety. Though other systems, e.g., metal-air, lithium-sulphur, solid state, and aluminium-ion, are now being investigated, the lithium-ion system is likely to dominate for at least the next decade – which is why several manufacturers, e.g., Toyota, Nissan and Tesla, are chiefly focusing on this technology. Providing comprehensive information on lithium-ion batteries, the book includes contributions by the world's leading experts on Li-ion batteries and vehicles.

The world is currently undergoing an historic energy transition, driven by increasingly stringent decarbonisation policies and rapid advances in low-carbon technologies. The large-scale shift

to low-carbon energy is disrupting the global energy system, impacting whole economies, and changing the political dynamics within and between countries. This open access book, written by leading energy scholars, examines the economic and geopolitical implications of the global energy transition, from both regional and thematic perspectives. The first part of the book addresses the geopolitical implications in the world's main energy-producing and energy-consuming regions, while the second presents in-depth case studies on selected issues, ranging from the geopolitics of renewable energy, to the mineral foundations of the global energy transformation, to governance issues in connection with the changing global energy order. Given its scope, the book will appeal to researchers in energy, climate change and international relations, as well as to professionals working in the energy industry.

This book is a printed edition of the Special Issue "Experimental and Thermodynamical Modeling of Ore-Forming Processes in Magmatic and Hydrothermal Systems" that was published in Minerals

This volume is about the challenges and opportunities facing developing countries in using their extractive industries to achieve inclusive and sustainable development. It recognises explicitly the greatly increased importance of mining, oil and gas in many lower income countries.

This textbook provides an introduction to the field of mineral economics and its use in understanding the behaviour of mineral commodity markets and in assessing both public and corporate policies in this important economic sector. The focus is on metal and non-metallic commodities rather than oil, coal, and other energy commodities. The work draws on John Tilton's teaching experience over the last 30 years at the Colorado School of Mines and the Catholic University of Chile, as well as short courses for RioTinto and other mining companies. This is combined with the professional consulting and academic research of Juan Ignacio Guzmán over the past decade, in order to demonstrate the industry application of the economic principles described in the earlier chapters. The book should be an ideal text for graduate and undergraduate students in the fields of mining engineering and natural resource economics and policy. It should also be of interest to professionals and investors in mining and commodity markets, and those undertaking continuing education in the mineral sector.

This comprehensive resource is published on an annual basis, and is considered the earliest Government publication to furnish estimates covering nonfuel mineral industry data for the United States and worldwide. Each chapter of this 2015 edition includes information on events, trends, and issues for each mineral commodity as well as discussions and tabular presentations, including data sheets on domestic industry structure, Government programs, tariffs, 5-year salient statistics, and world production and resources for more than 90 minerals and materials. The Mineral Commodity Summaries (MCS) is the earliest comprehensive source of 2014 mineral production data for the world. More than 90 individual minerals and materials are covered by two-page synopses. For mineral commodities for which there is a Government stockpile, detailed information concerning the stockpile status is also included in the two-page synopsis. Abbreviations and units of measure, and definitions of selected terms used in the report, are in Appendix A and Appendix B, respectively. "Appendix C--Reserves and Resources" includes "Part A--Resource/Reserve Classification for Minerals" and "Part B--Sources of Reserves Data." A directory of USGS minerals information country specialists and their responsibilities is Appendix D. Numerous charts and tables representing United States domestic and worldwide resources are contained within this volume for each mineral to provide a method for quick finding of the information related to a specific mineral. In year 2014, 12 states each produced more than \$2 billion worth of nonfuel mineral commodities. These States include --Arizona, Nevada, Minnesota, Texas, Utah, California, Alaska, Florida, Missouri, Michigan, Wyoming, and Colorado. Global commodity traders, economists, construction industry engineering executives, geologists, mining engineers, and statisticians

my highly desire the information contained in this annual resource. It is highly recommended that academic libraries with geology and mining engineering programs, special libraries within these fields, and public libraries place an updated annual copy of this primary source work in their business/economic and reference collections.

This collection presents papers from a symposium on extraction of rare metals as well as rare extraction processing techniques used in metal production. Topics include the extraction and processing of elements like antimony, arsenic, gold, indium, palladium, platinum, rare earth metals including yttrium and neodymium, titanium, tungsten, and vanadium. Rare processing techniques are covered, including direct extraction processes for rare-earth recovery, biosorption of precious metals, fluorination behavior of uranium and zirconium mixture of fuel debris treatment, and recovery of valuable components of commodity metals such as zinc, nickel, and metals from slag.

This landmark publication distills the body of knowledge that characterizes mineral processing and extractive metallurgy as disciplinary fields. It will inspire and inform current and future generations of minerals and metallurgy professionals. Mineral processing and extractive metallurgy are atypical disciplines, requiring a combination of knowledge, experience, and art. Investing in this trove of valuable information is a must for all those involved in the industry—students, engineers, mill managers, and operators. More than 192 internationally recognized experts have contributed to the handbook's 128 thought-provoking chapters that examine nearly every aspect of mineral processing and extractive metallurgy. This inclusive reference addresses the magnitude of traditional industry topics and also addresses the new technologies and important cultural and social issues that are important today. Contents
 Mineral Characterization and Analysis
 Management and Reporting
 Comminution
 Classification and Washing
 Transport and Storage
 Physical Separations
 Flotation
 Solid and Liquid Separation
 Disposal
 Hydrometallurgy
 Pyrometallurgy
 Processing of Selected Metals, Minerals, and Materials

This book describes the latest advances, innovations, and applications in the field of building design, environmental engineering and sustainability as presented by leading international researchers, engineers, architects and urban planners at the 3rd International Sustainable Buildings Symposium (ISBS), held in Dubai, UAE from 15 to 17 March 2017. It covers highly diverse topics, including smart cities, sustainable building and construction design, sustainable urban planning, infrastructure development, structural resilience under natural hazards, water and waste management, energy efficiency, climate change impacts, life cycle assessment, environmental policies, and strengthening and rehabilitation of structures. The contributions amply demonstrate that sustainable building design is key to protecting and preserving natural resources, economic growth, cultural heritage and public health. The contributions were selected by means of a rigorous peer-review process and highlight many exciting ideas that will spur novel research directions and foster multidisciplinary collaboration among different specialists.

Critical Mineral Resources of the United States
 Economic and Environmental Geology and Prospects for Future Supply
 Geological Survey

Bridging the gap between traditional books on quantum and statistical physics, this series is an ideal introductory course for students who are looking for an alternative approach to the traditional academic treatment. This pedagogical approach relies heavily on scientific or technological applications from a wide range of fields. For every new concept introduced, an application is given to connect the theoretical results to a real-life situation. Each volume features in-text exercises and detailed solutions, with easy-to-understand applications. Building on the principles introduced in Volume 1, this second volume explains the structure of atoms, the vibration and rotation of molecules. It describes how this is related to thermodynamics through statistical physics. It is shown that these fundamental achievements help to

understand how explosives and CO₂ can be detected, what makes a gecko stick to the ceiling, why old stars do not necessarily collapse, where nuclear energy comes from, and more. In the quest to mitigate the buildup of greenhouse gases in Earth's atmosphere, researchers and policymakers have increasingly turned their attention to techniques for capturing greenhouse gases such as carbon dioxide and methane, either from the locations where they are emitted or directly from the atmosphere. Once captured, these gases can be stored or put to use. While both carbon storage and carbon utilization have costs, utilization offers the opportunity to recover some of the cost and even generate economic value. While current carbon utilization projects operate at a relatively small scale, some estimates suggest the market for waste carbon-derived products could grow to hundreds of billions of dollars within a few decades, utilizing several thousand teragrams of waste carbon gases per year. *Gaseous Carbon Waste Streams Utilization: Status and Research Needs* assesses research and development needs relevant to understanding and improving the commercial viability of waste carbon utilization technologies and defines a research agenda to address key challenges. The report is intended to help inform decision making surrounding the development and deployment of waste carbon utilization technologies under a variety of circumstances, whether motivated by a goal to improve processes for making carbon-based products, to generate revenue, or to achieve environmental goals.

Designing buildings and physical environments depends on social structure, social needs, economic data, environment, and technological development. Planning these environments is heavily influenced by cultural and regional need, the existing environment, and the materials available. *Reusable and Sustainable Building Materials in Modern Architecture* is an essential reference source that discusses the shaping of building design through culture and materials as well as the influence of environment on building design. Featuring research on topics such as passive design, ecological design, and urban design, this book is ideal for academicians, specialists, and researchers seeking coverage on culture, environment, and building design. This book aims to inform better energy policy in hydropower dependent countries which are vulnerable to climate shocks. It focuses on the impact of increasing energy insecurity as global warming affects a fifth of the world population living in hydropower dependent countries facing drought. It uses Zambia as a case study. The book offers supply-side and demand-side recommendations at the national, continental, and global level and contains original data collected to highlight the impact of power outages on manufacturing firms.

This work introduces into the chemistry, materials science and technology of Rare Earth Elements. The chapters by experienced lecturers describe comprehensively the recent studies of their characteristics, properties and applications in functional materials. Due to the broad range of covered topics as hydrogen storage materials, LEDs or permanent magnets this work gives an up-to-date presentation of this fascinating research.

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