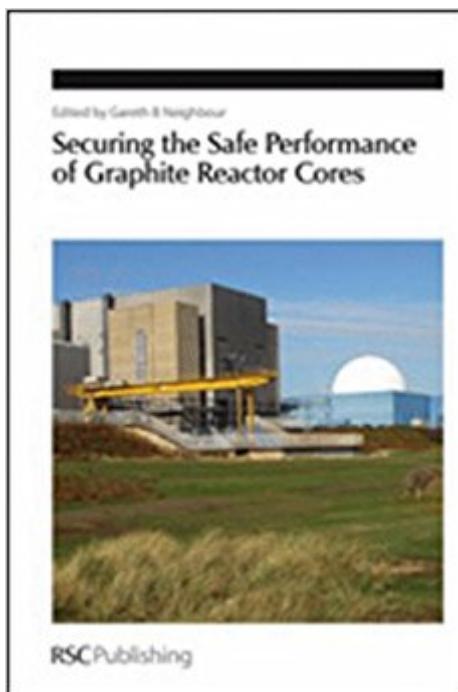


The book was found

# Securing The Safe Performance Of Graphite Reactor Cores: RSC (Special Publications)



## Synopsis

Nuclear power currently contributes some 20% of the electricity needs of the UK and is rising rapidly on the political agenda due to environmental and economic factors, and yet all but one of the UK's existing nuclear reactors is expected to close by 2023. The increasing emphasis towards nuclear power rests on security of supply and reducing carbon emissions. This comprehensive book provides an account of the recent advances in securing safe performance of graphite-moderated nuclear reactors both within the UK and abroad which underpin life extension whilst maintaining high levels of plant performance. These reactors rely on graphite as a moderator in the form of layers of interlocked graphite bricks which undergo complex changes when exposed over long periods to the effects of neutron irradiation and radiolytic oxidation. The objective of this book is to outline the current approaches in terms of assessment methodologies, surveillance and test methods, performance prediction, graphite reactor decommissioning, regulatory requirements and the relevance to future reactor designs. The book is a sequel to the successful RSC publication "Managing of Ageing Processes in Graphite Reactor Cores", but with the emphasis on the challenges for the future safe performance. It is hoped that the contributed papers will also help in the design, construction, operation and eventual decommissioning of the new generation of graphite-moderated reactors. Papers presented in the book represent contributions from the most eminent specialists in the field and reflect the UK's contribution over the past 50 years to graphite reactor technology that will remain significant for years to come, especially in the development of Generation IV designs. This seminal book is written in a way that takes the reader from fundamental knowledge to reactor operation in a straight forward and understandable manner - ideal for non-specialist as well as a unique reference for the specialist. It is fully illustrated to aid understanding and is relevant to a wide range of readers from policy makers to reactor operators.

## Book Information

Series: Special Publications (Book 328)

Hardcover: 272 pages

Publisher: Royal Society of Chemistry; 1st Edition. edition (January 4, 2010)

Language: English

ISBN-10: 1847559131

ISBN-13: 978-1847559135

Product Dimensions: 6.1 x 0.8 x 9.2 inches

Shipping Weight: 1.2 pounds ([View shipping rates and policies](#))

Average Customer Review: Be the first to review this item

Best Sellers Rank: #11,506,387 in Books (See Top 100 in Books) #56 in Books > Textbooks > Engineering > Nuclear Engineering #435 in Books > Science & Math > Chemistry > Nuclear Chemistry #498 in Books > Engineering & Transportation > Engineering > Chemical > Plant Design

## Customer Reviews

Nuclear power is rising rapidly on the political agenda due to environmental and economic factors. The increasing emphasis towards nuclear power rests on security of supply and reducing carbon emissions. This comprehensive book provides an up-to-date account of recent advances in securing safe performance of graphite-moderated nuclear reactors both within the UK and abroad. Contributions from eminent specialists in graphite technology, outlining current knowledge and experience with particular reference to nuclear graphites, ensure this seminal book will appeal to the non-specialist as well as providing a unique reference for the specialist.

Nuclear power currently contributes some 20% of the electricity needs of the UK and is rising rapidly on the political agenda due to environmental and economic factors, and yet all but one of the UK's existing nuclear reactors is expected to close by 2023. The increasing emphasis towards nuclear power rests on security of supply and reducing carbon emissions. This comprehensive book provides an account of the recent advances in securing safe performance of graphite-moderated nuclear reactors both within the UK and abroad which underpin life extension whilst maintaining high levels of plant performance. These reactors rely on graphite as a moderator in the form of layers of interlocked graphite bricks which undergo complex changes when exposed over long periods to the effects of neutron irradiation and radiolytic oxidation. The book is a sequel to the successful RSC publication "Managing of Ageing Processes in Graphite Reactor Cores", but with the emphasis on the challenges for the future safe performance. It is hoped that the contributed papers will also help in the design, construction, operation and eventual decommissioning of the new generation of graphite-moderated reactors. Papers presented in the book represent contributions from the most eminent specialists in the field and reflect the UK's contribution over the past 50 years to graphite reactor technology that will remain significant for years to come, especially in the development of Generation IV designs. The book addresses the following general topic areas:- "Assessment methodologies (including the development of test methods for collection of data) "Surveillance and Test methods (including in-core methods, e.g. monitoring and inspection,

and out-of-core methods, e.g. irradiation experiments in a materials test reactor) " Prediction of the performance of the graphite core (including fundamental material properties, modelling graphite component behaviour and modelling whole-core behaviour) " Plant modifications (such as diverse shut down systems) " Graphite decommissioning (including on safe disposal of the graphite core) " Regulatory requirements " Future reactor designs This seminal book is written in a way that takes the reader from fundamental knowledge to reactor operation in a straight forward and understandable manner - ideal for non-specialist as well as a unique reference for the specialist. It is fully illustrated to aid understanding and is relevant to a wide range of readers from policy makers to reactor operators.

[Download to continue reading...](#)

Securing the Safe Performance of Graphite Reactor Cores: RSC (Special Publications)  
Management of Ageing in Graphite Reactor Cores: RSC (Special Publications) Reactor Dosimetry State of the Art 2008: Proceedings of the 13th International Symposium on Reactor Dosimetry Nuclear Reactor Engineering: Reactor Design Basics Contemporary Boron Chemistry: RSC (Special Publications) Trace Elements Medicine and Chelation Therapy: RSC (RSC Paperbacks) Introduction to Glass Science and Technology: RSC (RSC Paperbacks) Therapeutic Oligonucleotides: RSC (RSC Biomolecular Sciences) The Chemistry of Fireworks: RSC (RSC Paperbacks) The Maillard Reaction: RSC (RSC Food Analysis Monographs) The Chemistry of Medical and Dental Materials: RSC (RSC Materials Monographs) The Two-Mile Time Machine: Ice Cores, Abrupt Climate Change, and Our Future Ice Core Evidence - Dispelling Arguments Against Immanuel Velikovsky's Theories Based On Greenland Ice Cores Micro-XRF Studies of Sediment Cores: Applications of a non-destructive tool for the environmental sciences (Developments in Paleoenvironmental Research) Mauritius West: Lembranza Collection de Cores Fotos con etiquetas (Photo Albums Book 8) (Galician Edition) The Performance of Jewish and Arab Music in Israel Today: A special issue of the journal Musical Performance Safe Meds: An Interactive Guide to Safe Medication Practice, 1e Being Safe with Weather (Be Safe) Being Safe at School (Be Safe) Safe Money Matters: Finding Safe Harbor in a Storm-Filled World

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)