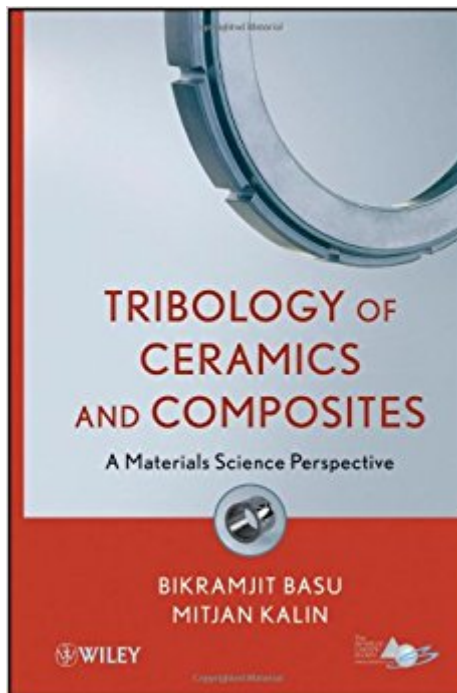




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Tribology Of Ceramics And Composites: Materials Science Perspective



Synopsis

This book helps students and practicing scientists alike understand that a comprehensive knowledge about the friction and wear properties of advanced materials is essential to further design and development of new materials. With important introductory chapters on the fundamentals, processing, and applications of tribology, the book then examines in detail the nature and properties of materials, the friction and wear of structural ceramics, bioceramics, biocomposites, and nanoceramics, as well as lightweight composites and the friction and wear of ceramics in a cryogenic environment.

Book Information

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Customer Reviews

Explore the principles of friction, lubrication, and wear from a materials science perspective Any engineered product assembly, wherein one material slides over or rubs against another is affected by complex tribological interactions, and understanding the science behind these interactions is essential for anyone working to improve the efficacy of new materials and manufacturing technologies. Tribology of Ceramics and Composites provides a rigorous study of how materials science can be used to understand, explore, and harness these interactions. Including introductory chapters on the fundamentals, processing, and applications of tribology, the book is designed primarily to provide students and practicing scientists with a comprehensive understanding of the fundamentals of the nature and properties of ceramic and composite materials as well as the friction and wear of structural ceramics in unlubricated, water-lubricated, and cryogenic environments. This

book also includes thematic sections on tribological properties of bioceramics, biocomposites, and nanoceramics, as well as lightweight composites. "Ceramics and composites represent an important class of engineering materials. The authors are commended for an excellent compilation that brings together some of the fundamental issues and applications of this class of materials as related to their tribological properties." —Dr. Said Jahanmir, Mohawk Innovative Technology, Inc., Albany, NY, USA "This book very well describes attractive tribo-properties of ceramics and composites with fundamentals of friction and wear and many examples of modern applications. Students, engineers, and researchers will find this book very useful for understanding the present state of the tribology of ceramics and composites and as an introduction to modern high-tech needs." —Prof. Koji Kato, Tohoku University and Nihon University, Japan With Forewords by Profs. Ian Hutchings and K. H. Zum Gahr

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This is a very good book that was clearly written by two experts. The book gives really good insights into the following: areas that ceramics are now being used, areas where they could be used, and how ceramics and ceramic based composites wear and break. The book also gives a great review of structural ceramics and ceramics used as biomaterials. The book gives a readable explanation of the wear mechanisms in ceramics as well. The book contains illustrations that show SEM analysis of many worn materials and the mechanisms that are responsible for the wear. The book does provide in my opinion excess information on many types of ceramics the average engineer may never encounter. However, the information in this book could be used to develop a more efficient machine that lasts much longer if one was willing to try a material other than steel.

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