

Processing Techniques and Tribological Behavior of Composite Materials

Part of the Advances in Chemical and Materials Engineering (ACME) Book Series

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Description:

An understanding of friction and wear behavior of materials is crucial in order to improve their performance and durability. New research is providing the opportunity to solve common problems relating to the development of materials, surface modification, coatings, and processing methods across industries.

Processing Techniques and Tribological Behavior of Composite Materials provides relevant theoretical frameworks and the latest empirical research findings on the strategic role of composite tribology in a variety of settings.

Readers:

This book is intended for students, researchers, academicians, and professionals working in industries where wear reduction and performance enhancement of machines and machine elements is essential to success.

ISBN: 9781466675308

Release Date: January, 2015

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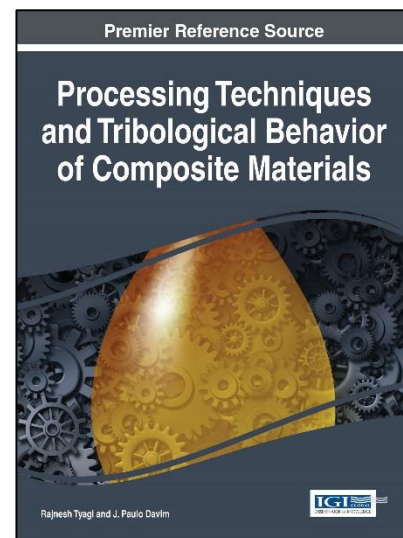
Pages: 410

Topics Covered:

- Advanced Machining of Polymer Composites
- Biocompatibility of Biomaterials
- Composites as Tribo-Materials
- Nickel-Based Composites and Coatings
- Processing Routes of Light Metal Matrix Nano-Composites
- Self-Lubricating Cu-Based Composites
- Surface Modification
- Texturing of Deterministic Tribological Surfaces
- Tribo-Corrosion of MMCs

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Section 1 - Tribology of Composite Materials**Chapter 1***Processing Routes, Mechanical and Tribological Properties of Light Metal Matrix Nanocomposites*

S. Jayalakshmi, Bannari Amman Institute of Technology, Sathyamanglam, India and R. Arvind Singh, Bannari Amman Institute of Technology, Sathyamanglam, India

Chapter 2*Material and tribology issues of self-lubricating copper matrix composite*

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Chapter 3*Tribological Behavior of Ni based self-lubricating composites at Elevated Temperatures*

Jianliang Li, Nanjing University of Science and Technology, Nanjing, PR China, Dangsheng Xiong, Nanjing University of Science and Technology, Nanjing, PR China, Yongkun Qin, Nanjing University of Science and Technology, Nanjing, PR China, and Rajnesh Tyagi, Indian Institute of Technology (Banaras Hindu University, Varanasi, India

Chapter 4*Tribological Characteristics of Copper-Nano Carbon Crystalline Composites*

K. Rajkumar, SSN College of Engineering, Kalavakkam, Tamilnadu, India and S. Aravindan, Indian Institute of Technology, Delhi, India

Chapter 5*Tribology and Aluminum Matrix Composites*

Sunil Mohan, Indian Institute of Technology (BHU), Varanasi, India, Rakesh Kr. Gautam, Indian Institute of Technology (BHU), Varanasi, India, and, Anita Mohan, Indian Institute of Technology (BHU), Varanasi, India

Chapter 6*Tribocorrosion in metal matrix composites*

Fatih Toptan, Universidade do Minho, Azurém, Portugal and Luís A. Rocha, UNESP—Univ. Estadual Paulista, Faculdade de Ciências de Bauru, Brazil

Chapter 7*Composites as Tribo Materials in Engineering Systems: Significance and Applications*

Hiral H. Parikh, School of Engineering and Technology, Navrachana University, Vadodara, India and Piyush P. Gohil, Faculty of Technology & Engineering, The M S University of Baroda, Vadodara, India

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Dipankar Choudhury, Brno University of Technology, Brno, Czech Republic, Taposh Roy, Faculty of Engineering, University of Malaya, Kuala Lumpur, Malaysia, and Ivan Krupka, Brno University of Technology, Brno, Czech Republic

Chapter 9*Articulating Biomaterials: Surface Engineering, Tribology and Biocompatibility*

Vamsi Krishna Balla, CSIR-Central Glass & Ceramic Research Institute (CSIR-CGCRI), Kolkata, India, Mitun Das, CSIR-Central Glass & Ceramic Research Institute (CSIR-CGCRI), Kolkata, India, Someswar Datta, CSIR-Central Glass & Ceramic Research Institute (CSIR-CGCRI), Kolkata, India, and Biswanath Kundu, CSIR-Central Glass & Ceramic Research Institute (CSIR-CGCRI), Kolkata, India

Chapter 10*The structure of Ventral Scale Textures in Snakes in comparison to Texturing of Deterministic Tribological Surfaces*

H. A. Abdel-Aal, Arts et Métiers ParisTech, LMPF-EA4106, Châlons-en-Champagne, France UNC-Charlotte, Charlotte, NC, USA

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Inderdeep Singh, Indian Institute of Technology Roorkee, India and Kishore Debnath, Indian Institute of Technology Roorkee, India

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Abdarazag Hassan I, University Southern Queensland, Toowoomba, Australia, J.G. Alotaibi, University Southern Queensland, Toowoomba, Australia, A. Shalwan, College of Technological Studies, PAAET, Kuwait, and B. F. Yousif, University Southern Queensland, Toowoomba, Australia

Chapter 13*Quickstep Processing of Polymeric Composites- An out-of-autoclave (OOA) Approach*

Laraib Alam Khan, Center for Emerging Sciences, Engineering and Technologies, Islamabad, Pakistan

J. Paulo Davim received his PhD degree in Mechanical Engineering from the University of Porto in 1997 and the Aggregation from the University of Coimbra in 2005. Currently, he is an Aggregate Professor at the Department of Mechanical Engineering of the University of Aveiro. He has more 25 years of teaching and research experience in manufacturing, materials and mechanical engineering with special emphasis in machining and tribology. Recently, he has also interest in sustainable manufacturing and industrial engineering. He is the Editor-in-Chief of six international journals, guest editor of journals, books editor, book series editor and scientific advisory for many international journals and conferences. Presently, he is an editorial board member of 20 international journals and acts as reviewer for more than 70 prestigious ISI Web of Science journals. In addition, he has also published in his field of research as author and co-author more than 40 book chapters and 350 articles in journals and conferences (more 180 articles in ISI Web of Science, h-index 25+).