

Contents

1 Solid Lubricants: Classification, Properties, and Applications . . .	1
P. Ajay Kumar, V. Vishnu Namboodiri, Emad Omrani, Pradeep Rohatgi, and Pradeep L. Menezes	
2 Tribology of Self-Lubricating Metal Matrix Composites	31
Yinyin Zhang and Richard R. Chromik	
3 In Situ Generated Turbostratic 2D Graphite: A New Way to Obtain High-Performance Self-Lubricating Iron-Based Composites	73
Jose Daniel Biasoli de Mello, Cristiano Binder, Sonia Maria Hickel Probst, and Aloisio Nelmo Klein	
4 Self-Lubricating Polymer Composites: Mechanisms, Properties, and Applications	123
P. Ajay Kumar, V. Vishnu Namboodiri, Emad Omrani, Pradeep Rohatgi, and Pradeep L. Menezes	
5 Tribology of Self-Lubricating Polymer Nanocomposites	147
Andrea Sorrentino	
6 Polymeric Solid Lubricant Transfer Films: Relating Quality to Wear Performance	175
Jiaxin Ye, Diana Haidar, and David Burris	
7 Self-Lubricating Alumina Matrix Composites	201
Ashish K. Kasar and Pradeep L. Menezes	
8 Recent Progress in Self-Lubricating Ceramic Composites	219
Guangyong Wu, Chonghai Xu, Guangchun Xiao, and Mingdong Yi	
9 Surface Engineering Design of Alumina-Matrix Composites	241
Yongsheng Zhang, Hengzhong Fan, Litian Hu, Yuan Fang, and Junjie Song	

**10 Environmental Analysis of Self-Lubricating Composites:
A Review 261**
Mohammad Hasan Balali, Narjes Nouri, and Wilkistar Otieno

**11 Molecular Dynamics Simulation of Friction in Self-Lubricating
Materials: An Overview of Theories and Available Models 275**
Ali Bakhshinejad, Marjan Nezafati, Chang-Soo Kim, and
Roshan M D’Souza