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Micrographic Observations; 3.4 Summary

3.4.1 Homogeneous Deformation - Severe Wear; 3.4.2 Homogeneous Deformation - Mild Wear; 3.4.3 Inhomogeneous Deformation - Severe Wear; Acknowledgements; References; 4 Boundary Lubricated Wear; Abstract; 4.1 Introduction; 4.2 Lubricated Wear Classification; 4.3 Lubricated Wear Versus "Dry" Wear; 4.4 Wear Measurement in Well-Lubricated Systems; 4.5 Measurement Procedures; 4.5.1 Run-In Process; 4.5.2 General Performance Wear Test (GPT); 4.5.3 Enhanced Oxidation Wear Test (EOT); 4.5.4 Boundary Film Persistence Test (BFPT); 4.5.5 Case Study with GPT and BFPT; 4.5.6 Boundary Film Failure Test (BFFT); 4.6 Wear Mechanisms Under Lubricated Conditions; 4.7 Modeling of Lubricated Wear; 4.7.1 Wear; 4.7.2 Contact Area; 4.7.3 Rheology; 4.7.4 Film Thickness; 4.7.5 Contact Stress; 4.7.6 Flash Temperatures; 4.8 Summary; Acknowledgments; References; 5 Wear and Chemistry of Lubricants; 5.1 Encountering Wear in Tribological Contacts; 5.2 Lubricant Formulations - Drivers for Change; 5.3 Tribochemistry and Wear; 5.4 Antiwear Additive Technologies; 5.4.1 Antiwear Technologies; 5.4.2 ZDDP - Antiwear Mechanism; 5.4.3 Interaction of ZDDP with Other Additives; 5.4.4 New Antiwear Additive Technologies; 5.5 Extreme Pressure Additives; 5.6 Lubricating Non-Fe Materials; References; 6 Surface Chemistry in Tribology; Abstract; 6.1 Introduction; 6.2 Boundary Lubrication and Oiliness Additives; 6.2.1 Introduction; 6.2.2 Monolayers, Multilayers and Soaps; 6.2.3 Viscous Near-Surface Layers; 6.2.4 Boundary Lubrication in Natural Joints; 6.2.5 Summary; 6.3 Zinc Dialkylthiophosphate; 6.3.1 Background; 6.3.2 Analytical Approaches; 6.3.3 Summary of Film-Formation Mechanism; 6.3.4 Studies of Film Structure, Composition, and Thickness; 6.4 Hard Disk Lubrication; 6.5 Vapor-Phase Lubrication; 6.6 Tribology of Quasicrystals

Sommario/riassunto

Tribology is emerging from the realm of steam engines and crank-case lubricants and becoming key to vital new technologies such as nanotechnology and MEMS. Wear is an integral part of tribology, and an effective understanding and appreciation of wear is essential in order to achieve the reliable and efficient operation of almost any machine or device. Knowledge in the field has increased considerably over recent years, and continues to expand: this book is intended to stimulate its readers to contribute towards the progress of this fascinating subject that relates to most of the known disciplines.
