

## CONTENTES

	Page
<b>PART I</b>	
<b>THE BASIC PRINCIPLES OF FRICTION AND WEAR IN POLYMER – BASED MATERIALS</b>	
Chapter 1. Frictional Interaction During Metal – Polymer Contact	3
1. The friction mechanism in solids and polymers	3
2. Strain during friction	10
3. Adhesion and its role in polymer friction	17
Chapter 2. The Influence of Operating Conditions on Wear in Polymers	23
1. The influence of load	24
2. The effect of sliding velocity	28
3. The effect of temperature	32
4. Friction in lubricated surfaces	38
5. Friction in a vacuum	47
Chapter 3. The Characteristics of Forming Frictional Contact in Polymer Bodies	55
1. The rheological properties of frictional contact in polymer based materials	57
2. Calculating the actual contact area in metal-polymer systems	71
3. Experimental methods of determining the actual contact area in polymer bodies	82
4. Experimental principles of determining the actual contact area in polymer bodies	99
Chapter 4. Wear in Polymer-based Materials	109
1. Types of wear	109
2. The basic principles of wear	113
Part I References	125
<b>PART II</b>	
<b>THE FUNCTION OF STRUCTURE IN THE FRICTION AND WEAR MECHANISMS OF POLYMER – BASED MATERIALS</b>	
Chapter 5. The Structure and Frictional Properties of Polymer based Materials	145
1. Structural features peculiar to polymer materials	147
2. Methods of research into the structural transformations which can take place in polymers during friction	153
3. The effect of structure on the frictional properties of polymer materials	159
Chapter 6. Frictional Transfer	195
1. Frictional transfer when polymers interact	196
2. Frictional transfer in metal-polymer contact	206
Chapter 7. Controlling the Structure and Frictional Properties of Polymer Materials	213
1. The manufacture of materials with given frictional properties	213
2. Controlling the structure and frictional properties during interaction	227
Part II References	245
<b>PART III</b>	
<b>THE APPLICATION OF POLYMER – BASED MATERIALS IN FRICTION ASSEMBLIES</b>	
Chapter 8. Composite Self-lubricating Materials	261
1. Materials based on polymers and dry lubricants	261
2. Timber-based composite materials	294
3. Metal-polymer electrically conducting materials	308
Chapter 9. Practical Applications Involving Polymer-Metal Friction	317

1. The peculiar design features of components made from polymer materials	317
2. Gear drives	324
3. Sliding friction bearings	341
4. Thin-layer polymer and metal-polymer coatings	368
Conclusion	387
Part III references	389
<b>INDEX</b>	<b>409</b>