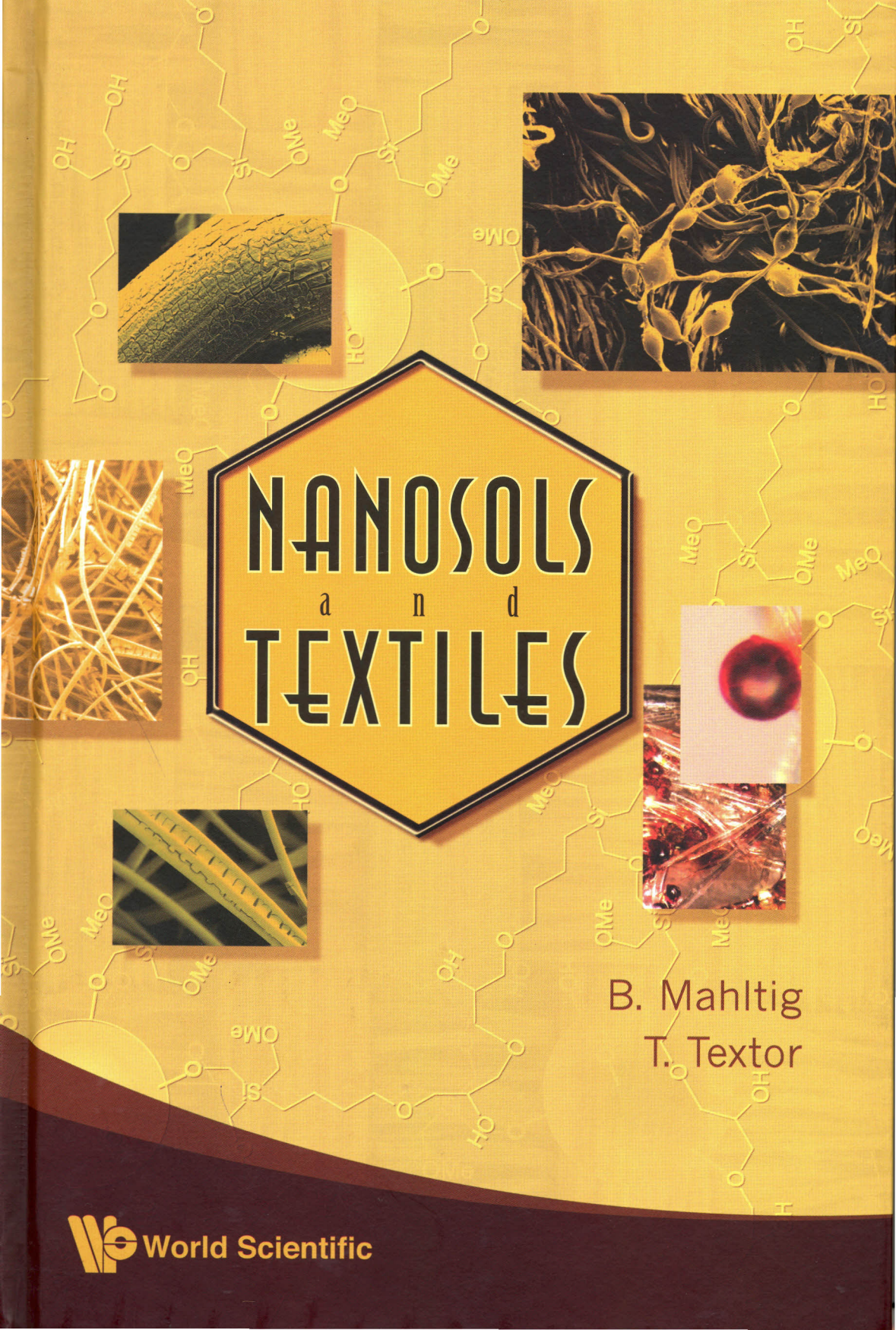


NANOSOLS a n d TEXTILES

B. Mahltig
T. Textor

Content

Preface	vii
Chapter 1 Nanosol Preparation and Application	1
1.1 General aspects of the preparation of nanosols	2
1.2 Modification of nanosols	7
1.3 General aspects of the textile coating process with nanosols	12
1.4 Application process	18
1.5 Fibres derived from sols	28
Chapter 2 Nanosols and Textile Properties	33
2.1 Mechanical properties.....	36
2.2 Wettability, water absorption and storage properties	46
2.3 Appearance	50
2.4 Air permeability.....	51
Chapter 3 Fibre Protection	54
3.1 Improved wear-resistance.....	55
3.2 Increased fire resistance or flame retardance.....	58
3.3 Barrier coatings	62
3.4 UV protection	65
Chapter 4 Improved Water, Oil and Soil Repellence	66
4.1 Hydrophobic coatings.....	67
4.2 Oil and soil repellent coatings	79
4.3 Self-cleaning properties	84

Chapter 5 Changing the Light Absorption of Textiles	90
5.1 Dyeing	93
5.2 UV protection	99
5.3 Photochromic coatings	104
Chapter 6 Electrical and Magnetic Properties	109
6.1 Antistatic coatings	111
6.2 Super-paramagnetic coatings for textile materials	120
Chapter 7 Bioactive Nanosol Layers	127
7.1 Antimicrobial coatings	129
7.1.1 Photoactive nanosol coatings.....	132
7.1.2 Nanosol coatings containing nondiffusible antimicrobial additives.....	139
7.1.3 Nanosol coatings with controlled-release of embedded biocides.....	142
7.1.4 Embedding volatile biocidal compounds (VBCs)	150
7.2 Oil and flavour releasing coatings	153
7.3 Embedding of enzymes and cells	157
Chapter 8 Applications	166
8.1 Wound dressing	166
8.2 Protective textiles – bulletproof vests.....	171
Appendix Glossary of Selected Methods	179
Bibliography	189
Index	221