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Autore	Lors Christine
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Chapitre 16: Choosing metallic materials with respect to microbial induced corrosion -- Chapitre 17: Antimicrobial surfaces : A tool to combat biofilm development -- Chapitre 18: Extracellular microbial substances for cementitious materials

Sommario/riassunto

This multidisciplinary book is the result of a collective work synthesizing presentations made by various specialists during the CNRS «BIODEMAT» school, which took place in October 2014 in La Rochelle (France). It is designed for readers of a range of scientic specialties (chemistry, biology, physics, etc.) and examines various industrial problems (e.g., water, sewerage and maintaining building materials). Metallic, cementitious, polymeric and composite materials age depending on their service and operational environments. In such cases, the presence of microorganisms can lead to biodeterioration. However, microorganisms can also help protect structures, provided their immense possibilities are mastered and put to good use. This book is divided into ve themes related to biocolonization, material biodeterioration, and potential improvements to such materials resulting in better performance levels with respect to biodeterioration: • physical chemistry of surfaces; • biolm implication in biodeterioration; • biocorrosion of metallic materials; • biodeterioration of non-metallic materials; • design and modication of materials. The afliations of the authors of the various chapters illustrate the synergy between academic research and its transfer to industry. This demonstrates the essential interaction between the various actors in this complex eld: analysing, understanding, and responding to the scientic issues related to biodeterioration.