

图书基本信息

书名：<<材料老化及其根据表面工程的控制MATERIALS DEGRADATION AND ITS CONTROL BY SURFACE>>

13位ISBN编号：9781860943348

10位ISBN编号：1860943349

出版时间：2002-12

出版时间：World Scientific Pub Co Inc

作者：Batchelor, Andrew W./ Lam, Loh Nee/ Chandrasekaran, Margam

页数：412

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

内容概要

The second edition of *Materials Degradation and Its Control by Surface Engineering* continues the theme of the first edition, where discussions on corrosion, wear, fatigue and thermal damage are balanced by similarly detailed discussions on their control methods, e.g. painting and metallic coatings. The book is written for the non-specialist, with an emphasis on introducing technical concepts graphically rather than through algebraic equations. In the second edition, the graphic content is enhanced by an additional series of colour and monochrome photographs that illustrate key aspects of the controlling physical phenomena. Existing topics such as liquid metal corrosion have been extended and new topics such as corrosion inhibitors added.

书籍目录

Preface Acknowledgements CHAPTER 1 INTRODUCTION 1.1 Definition of materials degradation 1.2 Definition and significance of surface engineering 1.3 Classification of materials degradation by physical mechanism 1.4 Economic and technical significance of materials degradation 1.5 Summary PART 1: MECHANISMS OF MATERIALS DEGRADATION CHAPTER 2 Mechanical causes of materials degradation 2.1 Introduction 2.2 Wear 2.2.1 Adhesive wear 2.2.2 Abrasive and erosive wear 2.2.3 Wear induced by mechanical fatigue of the worn surface 2.2.4 Melting wear, fretting wear and diffusive wear 2.2.5 Analytical models of wear 2.2.6 Wear resistant materials 2.3 Fatigue, fracture and creep 2.3.1 Mechanisms of fatigue and creep 2.3.2 Fatigue and creep resistant materials 2.4 Summary CHAPTER 3 CHEMICAL CAUSES OF MATERIALS DEGRADATION 3.1 Introduction 3.2 Corrosion of metals in aqueous media 3.2.1 Electrochemistry and aqueous corrosion 3.2.2 Electrochemical corrosion of machinery and structures 3.2.3 Corrosion inhibitors 3.2.4 Materials factors in aqueous corrosion 3.3 Oxidative reactions of metals with oxygen, sulphur and halogens 3.3.1 Durability of corrosion product film and failure of passivation 3.4 Softening and embrittlement of wood and polymers in water and other media 3.5 Damage to cement and concrete, glass and engineering ceramics by water and other corrosive liquids 3.6 Dissolution of metals and ceramics in liquid metals and molten inorganic salts and alkalis 3.7 Biochemical and biological modes of materials degradation 3.8 Corrosion resistant materials 3.9 Summary CHAPTER 4 MATERIALS DEGRADATION INDUCED BY HEAT AND OTHER FORMS OF ENERGY 4.1 Introduction 4.2 Thermal degradation of materials 4.2.1 Materials degradation at very low temperatures 4.3 Photochemical degradation of polymers 4.4 High energy radiation damage of materials 4.5 Summary CHAPTER 5 DUPLEX CAUSES OF MATERIALS DEGRADATION 5.1 Introduction 5.2 Wear in a corrosive or chemically active environment 5.2.1 Corrosive and corrosive-abrasive wear 5.2.2 Oxidative and corrosive effects on fretting 5.2.3 Abrasive wear in liquid metals 5.3 Corrosion fatigue and corrosion embrittlement (SCC) 5.4 Summary PART 2: SURFACE ENGINEERING CHAPTER 6 DISCRETE COATINGS 6.1 Introduction 6.2 Coatings of organic compounds 6.2.1 Utility of available organic coatings for different conditions 6.2.2 Methods of depositing organic coatings 6.2.3 Corrosion problems of organic coatings 6.3 Electrochemical coatings 6.3.1 Electroplating of metals 6.3.2 Anodising, electroless coatings, chromating and phosphating CHAPTER 7 INTEGRAL COATINGS AND MODIFIED SURFACE LAYERS CHAPTER 8 CHARACTERIZATION OF SURFACE COATINGS PART 3: APPLICATION OF CONTROL TECHNIQUES CHAPTER 9 CONTROL OF MATERIALS DEGRADATION CHAPTER 10 FINANCIAL AND INDUSTRIAL ASPECTS OF MATERIALS DEGRADATION AND ITS CONTROL

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>