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Toughness in polymers and adhesives; 7.6 Materials selection for toughness; Chapter 8. Stiffness; 8.1 The importance of stiffness; 8.2 The stiffness of materials; 8.3 The stiffness of sections; 8.4 Materials selection criteria for stiffness; 8.5 Comparison of materials selection criteria; Chapter 9. Fatigue; 9.1 Micromechanisms of fatigue in metals; 9.2 The assessment of fatigue resistance; 9.3 Factors influencing fatigue of metals; 9.4 Fatigue of non-metallic materials; 9.5 Materials selection for fatigue resistance

Chapter 10. Creep and temperature resistance 10.1 The evaluation of creep; 10.2 The nature of creep; 10.3 The development of creep-resisting alloys; 10.4 The service temperatures of engineering materials; 10.5 The selection of materials for creep resistance; 10.6 Deformation mechanism diagrams; Part 3: Selection for Surface Durability; Chapter 11. Selection for corrosion resistance; 11.1 The nature of the corrosion process; 11.2 The problem of hydrogen embrittlement of steel; 11.3 The selection of materials for resistance to atmospheric corrosion

11.4 The selection of materials for resistance to oxidation at elevated temperatures 11.5 The selection of materials for resistance to corrosion in the soil; 11.6 The selection of materials for resistance to corrosion in water; 11.7 The selection of materials for chemical plant; 11.8 The degradation of polymeric materials; Chapter 12. Selection of materials for resistance to wear; 12.1 The mechanisms of wear; 12.2 The effect of environment on wear; 12.3 Surface treatment to reduce wear; 12.4 Wear-resistant polymers; 12.5 Erosive wear; 12.6 Selection of materials for resistance to erosive wear

Chapter 13. The relationship between materials selection and materials processing

Sommario/riassunto

The aim of this book is to provide an understanding of the basic principles of materials selection as practised in engineering manufacture and design with an overview of established materials usage. Emphasis is placed on identifying service requirements and how materials relate to those requirements, rather than listing materials and describing applications. This edition has been revised throughout and now includes coverage of the use of new materials in engineering, materials for bearings and tribological usage, and the use of materials in civil engineering structures. It has als
