

<<工程材料>>

图书基本信息

书名：<<工程材料>>

13位ISBN编号：9787506247030

10位ISBN编号：7506247038

出版时间：1970-1

出版单位：北京世界图书出版公司

作者：[]R.L.Timings[著

页数：385

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>

<<工程材料>>

内容概要

there are many ways of using a text book. you can read through it from cover to cover and try to remember all that you have read. this is rarely successful unless you have a photographic memory , and few of us have. you may consider using it just as a reference book by looking up individual topics as and when you need that specific information. this can be useful as a reminder once you know the subject thoroughly but until then it can lead to misconceived ideas. . so , here are a few thoughts on how to maximise the benefit that you can get from this book. this book consists of a number of chapters. each chapter covers a major syllabus area. for example , chapter 4 covers plain carbon steels. it is divided up into sections. if you turn back to the contents page you will find that :

- section 4.1 deals with ferrous metals.
- section 4.2 deals with the iron-carbon system.
- section 4.3 deals with critical change points , and so on.

sometimes it is necessary to divide these sections up further. for example , section 4.2 subdivides into :

- section 4.2.1 , which deals with cooling transformations for a steel with a eutectoid composition.
- section 4.2.2 , which deals with cooling transformations for a steel with hypoeutectoid composition , and so on.

<<工程材料>>

书籍目录

preface acknowledgements introduction 1 introduction to materials and their properties 1.1 introduction 1.2 selection of materials 1.3 mechanical properties of materials 1.4 physical properties of materials 1.5 engineering materials 1.6 composite materials (composites) 1.7 factors affecting material properties 1.8 composition exercises 2 basic science of materials 2.1 introduction 2.2 atoms 2.3 molecules and lattices 2.4 elements 2.5 compounds 2.6 mixtures 2.7 solids, liquids and gases 2.8 crystals 2.9 allotropy 2.10 grain structure 2.11 crystal growth 2.12 solidification defects 2.13 macro- and microscopical examination 2.14 semiconductor materials 2.15 polymeric materials 2.16 polymer building blocks 2.17 polymers 2.18 crystallinity in polymers 2.19 orientation 2.20 melting points of crystalline polymers (tm) 2.21 glass transition temperature (tg) 2.22 the effect of temperature on polymer applications 2.23 memory effects exercises 3 alloying of metals 3.1 alloys 3.2 alloying elements 3.3 solubility 3.4 solid solutions 3.5 intermetallic compounds 3.6 cooling curves 3.7 phase 3.8 alloy types 3.9 phase equilibrium diagrams (eutectic type) 3.10 phase equilibrium diagram (solid solution type) 3.11 phase equilibrium diagram (combination type) 3.12 coring exercises 4 plain carbon steels 4.1 ferrous metals 4.2 the iron-carbon system 4.3 critical change points 4.4 the effect of carbon on the properties of plain carbon steel 4.5 plain carbon steels exercises 5 heat treatment of plain carbon steels 5.1 heat-treatment processes 5.2 annealing processes 5.3 stress-relief annealing 5.4 spheroidising annealing 5.5 full annealing 5.6 normalising 5.7 quench hardening 5.8 quenching media 5.9 tempering 5.10 mass effect 5.11 the 'jominy' (end-quench) test 5.12 case hardening 5.13 localised case hardening 5.14 surface hardening exercises 6 cast irons and their heat treatment 6.1 the iron-carbon system for cast irons 6.2 alloying elements and impurities 6.3 heat treatment of grey cast iron 6.4 malleable cast iron 6.5 spheroidal graphite cast iron 6.6 alloy cast irons 6.7 properties and uses of white cast irons 6.8 properties and uses of grey cast irons 6.9 specifications for grey iron castings 6.10 properties and uses of malleable cast irons 6.11 specifications for malleable cast irons 6.12 properties and uses of spheroidal and nodular graphite cast irons 6.13 specifications for spheroidal and nodular graphite cast irons 6.14 composition, properties and applications of some alloy cast irons exercises 7 non-ferrous metals, their alloys and their heat treatment 7.1 non-ferrous metals 7.2 aluminium 7.3 aluminium alloys 7.4 aluminium alloys (non-heat-treatable) 7.5 aluminium alloys (heat-treatable) 7.6 copper 7.7 high copper content alloys 7.8 brass alloys 7.9 tin-bronze alloys 7.10 aluminium-bronze alloys 7.11 cupro-nickel alloys 7.12 magnesium alloys 7.13 zinc alloys 7.14 tin-lead alloys exercises 8 polymeric (plastic) materials 8.1 the history of plastics 8.2 additives 8.3 general properties of polymeric materials 8.4 properties and applications of elastomers 8.5 properties and applications of typical thermoplastics 8.6 properties and applications of typical thermosetting plastics exercises 9 composite materials 9.1 introduction 9.3 fibre reinforcement 9.4 particle reinforcement exercises 10 shaping and joining materials 10.1 casting 10.2 shrinkage and machining allowance 10.3 casting defects 10.4 plastic deformation 10.5 cold working 10.6 the heat treatment of cold-worked metals 10.7 hot working 10.8 some hot-working processes 10.9 some cold-working processes 10.10 moulding polymeric materials 10.11 compression joints 10.12 soft soldering 10.13 hard soldering (brazing) 10.14 fusion welding 10.15 effect of welding on the structure and properties of materials 10.16 spot welding 10.17 welding plastic materials 10.18 adhesive bonding 10.19 thermoplastic adhesives 10.20 impact adhesives 10.21 thermosetting adhesives 10.22 safety in the use of adhesives exercises 11 materials testing (destructive) 11.1 properties of materials 11.2 tensile test 11.3 tensile test results 11.4 proof stress 11.5 the interpretation of tensile test results 11.6 the effect of grain size and structure on tensile testing 1.7 tensile testing polymeric materials 1.8 impact testing 1.9 the interpretation of impact tests 1.10 the effect of processing on toughness 1.11 hardness testing 1.12 the effect of processing on hardness 1.13 the hardness testing of polymers 1.14 comparative scales of hardness 1.15 ductility testing exercises 12 materials testing (non-destructive) 12.1 the need for non-destructive testing 12.2 visual examination 12.3 use of dye penetrants 12.4 ultrasonic testing 12.5 eddy-current testing 12.6 magnetic testing 12.7 radiography exercises 13 materials in service 13.1 allowable working stress 13.2 creep 13.3 creep in polymeric materials 13.4 fatigue 13.5 factors affecting fatigue (metals) 13.6 factors affecting fatigue (polymers) 13.7 the corrosion of metals 13.8 atmospheric corrosion 13.9 galvanic corrosion 13.10 factors affecting corrosion 13.11 metals which resist corrosion

13.12 chemical inhibition 13.13 cathodic protection 13.14 protective coatings 13.15 plastic degradation exercises 14
select materials for engineered products 14.1 criteria for the selection of materials for engineered products 14.2
failure of materials in service 14.3 british standard specifications 14.4 case studies 14.5 material selection for the civil
engineering industry: spanning the firth of forth 14.6 material selection in the aviation industry: airframes 14.7
selection and application of materials exercise index

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>