Contents

Section 1 – Ferrous metals

Cast irons . . . 3
Carbon steels . . . 20
BS 970 - replacing En steels . . . 29
Alloy steels . . . 33
Sheet steels . . . 75
Casting steels . . . 78

Section 2 – Non-ferrous metals and alloys

Non-ferrous metals and alloys . . . 91
Metal matrix composites . . . 233
Refractory metals . . . 237

Section 3 – Non-metallic materials

Carbides . . . 243
Carbon . . . 245
Ceramic fibres . . . 249
Ceramics . . . 256
Composites . . . 277
Cork . . . 281
Elastomers . . . 286
Felt . . . 297
Fibre . . . 300
Glass . . . 304
Non-metallic bearing materials . . . 321
Rubber (natural) . . . 334
Rubber (synthetic) . . . 343
Silicones . . . 349
Wood . . . 353
Leather . . . 364

Section 4 – Thermoplastics

Introduction 371
ABS/SAN/ASA 373
Acetal 388
Acrylic 393
Cellulose plastics 399
Polystyrene (PS) 403
Fluorocarbons 411
Nylons (polyamides) 418
Modified PPO/PPE 429
Polyolefins: LDPE/LLDPE/MDPE/HDPE/polypropylene/EVA 435
Polycarbonate (PC) 448
Thermoplastic polyesters: PET/PETP/PETG/PBT. 454
Polyarlyates 461
PVC (polyvinyl chloride) 463
Blends and alloys 469
High performance plastics 474
Methylpentene (TPX) 486
PBA 487
Ionomers. 488
Polyvinylcarbazole 490
Polyisobutylene (PIB) 492

Section 5 – Thermoset plastics

Introduction 495
Alkyds 496
Amino resins 498
Thermosetting acrylic resins. 500
Epoxides 501
Phenolics 504
Polyester 506
Polyimides 508
Silicons 510

Section 6 – Plastics (processed)

Laminated plastics (industrial laminates) 515
Sandwich mouldings 532
Cellular plastics 537
Glass reinforced plastics (GRP) 548
Filled thermoplastics 557
Carbon fibre reinforced plastics (CFRP) 568

Section 7 – Materials for specific applications

Abrasives 579
Bearing metals. 581
Diaphragm materials 590
High temperature structural materials 594
Honeycomb materials 598
Insulating materials (thermal): 602
Insulating materials (acoustic) 607
Low density structural laminates. 618
Lubricants 623
Metallic wool 631
Perforated metals 632
Powdered metals. 638
Printing metals. 642
Pyrometric materials 647
Refractory materials 652
Spring materials 656
Surface finishing of metals 659
Woven wire 667

Section 8 – Materials for electrical applications

Electrical contact material. 681
Electrical tapes. 689
Fusible elements (electrical): 694
Insulating materials (electrical) 697
Magnetic materials 705
Permanent magnet materials 708
Soft magnetic materials 716
Magnetostriction - the Joule effect 722
Piezoelectric materials. 726

Section 9 – Joining materials

Adhesives 733
Low melting point alloys (fusible alloys). 746
Sealants 750
Solders 753
Brazing materials 760

Section 10 – Engineering data

Metals data 769
Useful corrosion information 775
Comparison of test figures for plastics 778
Summary of ASTM test methods 781

Editorial Index 789