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# University of Leeds Classification of Books
# **Materials**

*For Stack: see Ceramics and Metallurgy*
*Materials for civil engineering : see Civil Engineering G-0*

## [A General]

A-0.01 Periodicals
A-0.02 Series
A-0.03 Symposia on materials in general
A-0.04 Guides to the literature; bibliography
A-0.07 Study, teaching, research
A-0.09 Data and tables
A-0.19 Handbooks; encyclopaedias; dictionaries (all)

## [B Materials science]

B-1 Standard works; general textbooks
B-2 Structure; solidification
B-2.2 Structural analysis; microscopic techniques
B-2.4 Defects; dislocations; imperfections in crystal structures; radiation damage
B-3 Physical properties and phenomena
B-3.1 Phase diagrams, equilibrium diagrams
B-3.2 Diffusion
B-3.4 Electrical properties and materials (insulators; conductors; piezoelectric ceramics etc.)
B-3.5 Optical properties
B-3.6 Magnetic properties and materials (ferrites; ferroelectric ceramics etc.)
B-4 Mechanical properties; failure of materials; failure analysis
B-4.1 Deformations; stress / strain; fatigue; elasticity; plasticity, creep
B-4.2 Fracture
B-4.3 Tribological properties; friction and wear of materials; abrasion
*see also* Mechanical Engineering G
B-5 Testing of materials
B-6 Chemical properties (corrosion; oxidation; biodegradation; evaporation)
B-7 Other properties
B-8 Manufacture *Processing of materials: see* Mechanical Engineering K
B-9.0 Applications – Biomaterials *Mechanical aspects:* Mechanical Engineering K-14
B-9.2 Adhesives and adhesion *Manufacture:* Chemical Engineering R-4.36
B-9.3 Materials for microelectronics
B-9.4 Surface coatings, surface engineering
B-9.5 Nanotechnology *See also Engineering N*

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## [C Ceramics]

*See also* Ancient History M-5; Archaeology C-3; Art L

C-0.02 Series
C-0.03 Symposia; collections of articles
C-0.04 Guides to the literature; bibliographies
C-1 General texts
C-2 Structure and composition of ceramic materials; defects; ionic and atomic mobility
C-3.0 Physical properties
C-3.4 Electrical properties; magnetic properties
C-4.0 Mechanical properties
C-4.3 Rheological properties of ceramics
C-5 Testing and analysis of ceramic materials
C-6 Physical and chemical phenomena in ceramic materials; corrosion of ceramics; sintering
C-8 Manufacture and processing
C-8.1 Finishing; coating; joining *including enamels, glazes*
C-9 Ceramic materials *including clays, silicates, miellite*
C-10 Ceramic products
C-10.1 Whitewares, pottery
C-10.2 Glass
C-10.21 Properties of glass
C-10.3 Cement and concrete
C-10.4 Refractories and high temperature processes; Whiskers
C-10.41 Oxides, magnasite, zirconia
C-10.42 Carbides, silicon carbide
C-10.5 Bricks; construction materials
C-10.9 Other products [e.g. nuclear fuel-rods, advanced ceramics, lithium ceramics, electronic ceramics, engineering ceramics, silicon nitride, powders]
C-12 Bioceramics

## [D Metals]

D-0.02 Series
D-0.03 Symposia; collections of articles
D-0.04 Guides to the literature; bibliographies
D-0.06 Study and teaching
D-0.07 Metallurgical industry
D-0.1 Equipment, techniques applicable to more than one aspect of metallurgy e.g. computers in metallurgy; mathematical models
D-1 Standard works; general texts
D-2 Physical metallurgy; constitution and structure of metals and alloys
D-2.2 Metallography, microscopy, diffraction
D-2.4 Atomic and electronic structure; crystal structure and imperfections; dislocations and defects; impurities; solid solutions; texture; grain boundaries; interfaces
D-2.6 Transformations and resulting structures, including diffusion; nucleation; grain growth; recovery recrystallization, precipitation; precipitation hardening; solidification theory; austenite formation; decomposition
D-3 Physical properties
D-3.4 Thermal properties; thermodynamics; thermochemistry; chemical kinetics; surface properties
D-4 Mechanical properties; strength, stress, creep, fatigue etc.
D-5 Analysis and testing; control; chemical and physical analysis, flow detection; temperature measurement and control: automation

D-6 Chemical properties of metals; physical chemistry: electrochemistry [*see also* Chemistry Q-10–Q-99]
D-8 Extractive metallurgy, extraction and refining of metals, vacuum metallurgy, purification of metals, electroslag refining
D-9 Metallurgical practice; general texts
D-9.1 Heat treatment; annealing; reheating; soaking; cooling; quenching; case and flame hardening; tempering; protective atmospheres
D-9.2 Foundry practice; melting; casting; moulding; sand practice
D-9.3 Electrochemical machining
D-9.4 Mechanical working; forging; forming; stamping; rolling; drawing, extrusion; machining
D-9.5 Joining; welding; soldering; brazing; adhesive and diffusion bonding
D-9.6 Cleaning; coating; finishing; polishing; anodizing; plating; spraying; thin films technology
D-10 Corrosion; mechanism, behaviour and resistance; prevention (other than by coating), oxidation, stress corrosion; corrosion testing
D-11 Powder and fibre metallurgy; production and properties; sintering
D-12 Ferrous metallurgy; general works on iron and steel; properties and uses
D-12.1 Ironmaking; blast furnaces
D-12.2 Steel; general
D-12.3 Steelmaking
D-12.4 Physical metallurgy of iron and steel
D-12.6 Ferrous alloys
D-13 Non-ferrous metallurgy
D-13.1 Heavy non-ferrous metals
D-13.3 Light non-ferrous metals
D-13.5 Refractory metals and alloys
D-13.6 Radioactive metals
D-13.7 Noble metals
D-13.8 Other metals

## [E Polymers]

*See also* Chemistry E-80 *for polymerisation processes, physical chemistry, Degradation, photochemistry, radiation chemistry*

E-0 General
E-0.19 Handbooks; encyclopaedias
E-1 General texts
E-1.1 Experiments in polymer science and technology
E-2 Structure
E-2.1 Analysis and characterisation (including spectroscopic methods)
E-2.2 Crystal structure and structural analysis; microscopic and diffraction techniques
E-3.0 Physical properties (general)
E-3.1 Thermal properties
E-3.4 Electrical properties
E-3.5 Optical properties
E-3.6 Diffusive properties
E-3.7 Polymer surface properties and structure
E-4 Mechanical properties
E-4.1 Deformation; stress / strain; fatigue; elasticity; plasticity
E-4.2 Fracture
E-4.3 Rheological properties; viscoelasticity *see also theoretical polymer science / chemistry at* Materials E-80
E-5 Testing of polymers; stress analysis etc.
E-8 Manufacture and processing; etching; deposition; extrusion; pultrusion

E-8.1 Monomers and precursors
E-8.2 Additives and plasticizers
E-9 Specific polymers and plastics
E-9.1 Inorganic polymers
E-9.7 Rubbers
E-9.8 Fibres *See also Textiles B-4.1*
E-9.9 Polymers and plastics for special conditions; textiles; recycling
E-10 Reinforced polymers
E-80 Polymer chemistry; polymer degradation; polymerization; polymer solutions; polymer cells; irradiation of polymers

## [F Composites]

F-0 General
F-1 Metal – Matrix composites
F-2 Ceramic – Matrix composites
F-3 Polymeric – Matrix composites

## G-0 Other materials

*Including paper, wood*

G-1 Carbon and graphite (industrial, including fibres, but composites in F)
G-2 Asbestos