Engineering Alloys

Engineering AlloysEngineering & ContractingRecommended Values of Thermophysical Properties for Selected Commercial AlloysEngineering and Mining JournalENGINEERING MATERIALSThe Chemical EngineerSurface Engineering of Light AlloysMaterials and Process Selection for Engineering DesignMaterials of Engineering: Non-ferrous metals and alloysThe Engineering IndexShape Memory Alloy EngineeringThe Engineering Index AnnualEmbrittlement of Engineering AlloysMetallurgical & Chemical EngineeringEngineering AlloysWoldman's Engineering AlloysWoldman's Engineering AlloysThe Materials of Engineering: Non-ferrous metals and alloys: copper; tin; zinc; etc.; brass; bronze; etc. 1884Alloys and Intermetallic CompoundsThe Engineering DigestStructure and Properties of Engineering AlloysMechanical EngineeringEngineering Properties and Applications of Lead AlloysChemical & Metallurgical EngineeringPIE, Publications Indexed for EngineeringSurface Engineering of Light AlloysMaterials of Engineering: Brasses, bronzes, and other alloys, and their constituent metals. 4th ed. rev. 1900Woldman's Engineering AlloysElements of Metallurgy and Engineering AlloysHigh-temperature Corrosion of Engineering AlloysEngineering Properties of Magnesium AlloysEngineering Aspects of Shape Memory AlloysMaterials of Engineering: A treatise on brasses, bronzes, and other alloys, and their constituent metals. Fourth ed. revASM Ready ReferenceChemical Engineering CatalogIndustrial Engineering and the Engineering DigestBlends and Alloys of Engineering ThermoplasticsScattering Theory and Biomedical Engineering Modelling and ApplicationsNewnes Engineering Materials Pocket BookMaterials for Engineering

Engineering Alloys

Engineering Aspects of Shape Memory Alloys provides an understanding of shape memory by defining terms, properties, and applications. It includes tutorials, overviews, and specific design examples—all written with the intention of minimizing the science and maximizing the engineering aspects. Although the individual chapters have been written by many different authors, each one of the best in their fields, the overall tone and intent of the book is not that of a proceedings, but that of a textbook. The book consists of five parts. Part I deals with the mechanism of shape memory and the alloys that exhibit the effect. It also defines many essential terms that will be used in later parts. Part II deals primarily with constrained recovery, but to some extent with free recovery. There is an introductory paper which defines terms and principles, then several specific examples of products based on constrained recovery. Both Parts III and IV deal with actuators. Part III introduces engineering principles while Part IV presents several of the specific examples. Finally, Part V deals with superelasticity, with an introductory paper and then several specific examples of product engineering.

Engineering & Contracting

Newnes Engineering Materials Pocket Book is a guidebook that provides a concise discussion on the various materials used in engineering. The coverage of the book includes ferrous and non-ferrous metals, polymeric materials, and ceramics and composites. The text first presents the terminology, and then proceeds to covering the test methods. The next nine chapters discuss the properties of various engineering materials, including copper, magnesium, nickel, and titanium. Next, the book presents the comparative properties table and materials index. The book will be of great use to both students and practitioners of engineering, especially materials engineering.

Recommended Values of Thermophysical Properties for Selected Commercial Alloys

Engineering and Mining Journal

Annotation New edition of a reference that presents the values of properties typical for the most common alloy processing conditions, thus providing a starting point in the search for a suitable material that will allow, with proper use, all the necessary design limitations to be met (strength, toughness, corrosion resistance and electronic properties, etc.) The data is arranged alphabetically and contains information on the manufacturer, the properties of the alloy, and in some cases its use. The volume includes 32 tables that present such information as densities, chemical elements and symbols, physical constants, conversion factors, specification requirements, and compositions of various alloys and metals. Also contains a section on manufacturer listings with contact information. Edited by Frick, a professional engineering consultant. Annotation c. Book News, Inc., Portland, OR (booknews.com).

ENGINEERING MATERIALS

Shape Memory Alloy Engineering introduces materials, mechanical, and aerospace engineers to shape memory alloys (SMAs), providing a unique perspective that combines fundamental theory with new approaches to design and modeling of actual SMAs as compact and inexpensive actuators for use in aerospace and other applications. With this book readers will gain an understanding of the intrinsic properties of SMAs and their characteristic state diagrams, allowing them to design innovative compact actuation systems for applications from aerospace and aeronautics to ships, cars, and trucks. The book realistically discusses both the potential of these fascinating materials as well as their limitations in everyday life, and how to overcome some of those limitations in order to achieve proper design of useful SMA mechanisms. Discusses material characterization processes and results for a number of newer SMAs Incorporates numerical (FE) simulation and integration procedures into commercial codes (Msc/Nastran, Abaqus, and others) Provides detailed examples on design procedures and optimization of SMA-based actuation systems for real cases, from specs to verification lab tests on physical demonstrators

One of the few SMA books to include design and set-up of demonstrator characterization tests and correlation with numerical models

The Chemical Engineer

Surface Engineering of Light Alloys

Materials and Process Selection for Engineering Design

A reference guide covering many properties of engineering alloys: bearing, bending, compression, creep, damping, deformation, elastic, fracture, hardness, shear, tensile, atomic, corrosion, electrical, magnetic, mass, microstructure, surface, thermal, forming, and processing. The description of each

Materials of Engineering: Non-ferrous metals and alloys

The purpose of this book is to provide engineers with extensive up-to-date high-temperature corrosion data pertinent to real industrial problems. The focus is on commercial alloys and deals with oxidation; carburization and metal dusting; nitridation; halogen corrosion; sulfidation; ash/salt deposit corrosion; molten salt corrosion; molten metal corrosion.

The Engineering Index

Shape Memory Alloy Engineering

The Engineering Index Annual

Embrittlement of Engineering Alloys

This book focuses on the role of modeling in the design of alloys and intermetallic compounds. It includes an introduction to the most important and most used modeling techniques, such as CALPHAD and ab-initio methods, as well as a section devoted to the latest developments in applications of alloys. The book emphasizes the correlation between modeling and technological developments while discussing topics such as wettability of Ultra High Temperature Ceramics by metals, active brazing of diamonds to metals in cutting tools, surface issues in medicine, novel Fe-based superconductors, metallic glasses, high entropy alloys, and thermoelectric materials.

Metallurgical & Chemical Engineering

This third edition of what has become a modern classic presents a lively overview of Materials Science which is ideal for students of Structural Engineering. It contains chapters on the structure of engineering materials, the determination of mechanical properties, metals and alloys, glasses and ceramics, organic polymeric materials and composite materials. It contains a section with thought-provoking questions as well as a series of useful appendices. Tabulated data in the body of the text, and the appendices, have been selected to increase the value of Materials for engineering as a permanent source of reference to readers throughout their professional lives. The second edition was awarded Choice’s Outstanding Academic Title award in 2003. This third edition includes new information on emerging topics and updated reading lists.

Engineering Alloys

Woldman's Engineering Alloys

Woldman's Engineering Alloys

This practical reference provides thorough and systematic coverage on both basic metallurgy and the practical engineering aspects of metallic material selection and application.

The Materials of Engineering: Non-ferrous metals and alloys: copper; tin; zinc; etc.; brass; bronze; etc. 1884

Alloys and Intermetallic Compounds

This book addresses issues of scattering theory and biomedical engineering, as well as methodological approaches and tools from related scientific areas such as applied mathematics, mechanics, numerical analysis, and signal and image processing.

The Engineering Digest

Structure and Properties of Engineering Alloys

Treatise on Materials Science and Technology, Volume 25: Embrittlement of Engineering Alloys is an 11-chapter text that describes some situations that produce premature failure of several engineering alloys, including steels and nickel- and aluminum-base alloys. Chapters 1 to 3 consider situations where improper alloy composition, processing, and/or heat treatment can lead to a degradation of mechanical properties, even in the absence of an aggressive environment or an elevated temperature. Chapters 4 and 5 examine the effect of elevated temperatures on the mechanical properties of both ferrous and nonferrous alloys. Chapters 6 and 7 discuss the effects of corrosive environments on both stressed and unstressed materials. In these environments anodic dissolution is the primary step that leads to failure. Chapters 8 to 10 deal with the effects of aggressive environments that lead to enhanced decohesion or embrittlement of the metal, such as hydrogen, liquid metal, and irradiation-induced embrittlement. Chapter 11 looks into the embrittlement phenomena occurring during welding, one of the most common processing conditions to which a material could be subjected. This book will prove useful to materials scientists and researchers.

Mechanical Engineering

Engineering Properties and Applications of Lead Alloys

Chemical & Metallurgical Engineering

PIE, Publications Indexed for Engineering

Surface Engineering of Light Alloys

Focusing on the uses of lead in pure or alloy form for engineering applications, this text presents data on the physical, mechanical, corrosive, accoustic, damping and nuclear properties of lead and lead alloys. It organizes information according to alloy type in tables, graphs and text, and examines the processing of commercially available lead products, including casting, rolling, extrusion, machining, welding and mechanical joining techniques.

Materials of Engineering: Brasses, bronzes, and other alloys, and their constituent metals. 4th ed. rev. 1900

Woldman's Engineering Alloys

This compact and student-friendly book provides a thorough understanding of properties of metallic materials and explains the metallurgy of a large number of metals and alloys. The text first exposes the reader to the structure-property correlation of materials, that form the basis for predicting their behaviour during manufacturing and other service conditions, and then discusses the factors governing the selection of a material for specific applications. It further introduces the various specifications/designations, (including AISI/SAE system) used for steels and the alloying elements. The text also gives detailed coverage on mechanical behaviour of other engineering metals including Al, Mg, Cu, Ni, Zn and Pb. Profusely illustrated with graphs and tables, the book presents a large number of questions and answers framed on the pattern of the university examinations. It thus enables the students to format compact and to-the-point answers. This book would be highly valued by students of metallurgical engineering and also those pursuing various other engineering as well as polytechnic courses, besides professionals who deal with selection of materials.

Elements of Metallurgy and Engineering Alloys

The growing use of light alloys in industries such as aerospace, sports equipment and biomedical devices is driving research into surface engineering technologies to enhance their properties for the desired end use. Surface engineering of light alloys: Aluminium, magnesium and titanium alloys provides a comprehensive review of the latest technologies for modifying the surfaces of light alloys to improve their corrosion, wear and tribological properties. Part one discusses surface

degradation of light alloys with chapters on corrosion behaviour of magnesium alloys and protection techniques, wear properties of aluminium-based alloys and tribological behaviour of titanium alloys. Part two reviews surface engineering technologies for light alloys including anodising, plasma electrolytic oxidation, thermal spraying, cold spraying, physical vapour deposition, plasma assisted surface treatment, PIII/PSII treatments, laser surface modification, ceramic conversion and duplex treatments. Part three covers applications for surface engineered light alloys including sports equipment, biomedical devices and plasma electrolytic oxidation and anodised aluminium alloys for spacecraft applications. With its distinguished editor and international team of contributors, Surface engineering of light alloys: Aluminium, magnesium and titanium alloys is a standard reference for engineers, metallurgists and materials scientists looking for a comprehensive source of information on surface engineering of aluminium, magnesium and titanium alloys. Discusses surface degradation of light alloys considering corrosion behaviour and wear and tribological properties Examines surface engineering technologies and modification featuring plasma electrolytic oxidation treatments and both thermal and cold spraying Reviews applications for engineered light alloys in sports equipment, biomedical devices and spacecraft

High-temperature Corrosion of Engineering Alloys

Introducing a new engineering product or changing an existing model involves making designs, reaching economic decisions, selecting materials, choosing manufacturing processes, and assessing its environmental impact. These activities are interdependent and should not be performed in isolation from each other. This is because the materials and proce

Engineering Properties of Magnesium Alloys

Engineering Aspects of Shape Memory Alloys

The growing use of light alloys in industries such as aerospace, sports equipment and biomedical devices is driving research into surface engineering technologies to enhance their properties for the desired end use. Surface engineering of light alloys: Aluminium, magnesium and titanium alloys provides a comprehensive review of the latest technologies for modifying the surfaces of light alloys to improve their corrosion, wear and tribological properties. Part one discusses surface degradation of light alloys with chapters on corrosion behaviour of magnesium alloys and protection techniques, wear properties of aluminium-based alloys and tribological behaviour of titanium alloys. Part two reviews surface engineering technologies for light alloys including anodising, plasma electrolytic oxidation, thermal spraying, cold spraying, physical vapour deposition, plasma assisted surface treatment, PIII/PSII treatments, laser surface modification, ceramic conversion and duplex treatments. Part three covers applications for surface engineered light alloys including sports equipment,

biomedical devices and plasma electrolytic oxidation and anodised aluminium alloys for spacecraft applications. With its distinguished editor and international team of contributors, Surface engineering of light alloys: Aluminium, magnesium and titanium alloys is a standard reference for engineers, metallurgists and materials scientists looking for a comprehensive source of information on surface engineering of aluminium, magnesium and titanium alloys. Discusses surface degradation of light alloys considering corrosion behaviour and wear and tribological properties Examines surface engineering technologies and modification featuring plasma electrolytic oxidation treatments and both thermal and cold spraying Reviews applications for engineered light alloys in sports equipment, biomedical devices and spacecraft

Materials of Engineering: A treatise on brasses, bronzes, and other alloys, and their constituent metals. Fourth ed. rev

ASM Ready Reference

Chemical Engineering Catalog

Industrial Engineering and the Engineering Digest

Blends and Alloys of Engineering Thermoplastics

Scattering Theory and Biomedical Engineering Modelling and Applications

Newnes Engineering Materials Pocket Book

Magnesium and magnesium alloys provide unique properties for engineering applications. Magnesium alloys are popular as a structural material because of their combination of light weight and strength. They are desirable for portable tools, appliances, electronic devices, airplanes, space vehicles, and land transportation. This book is written for engineers,

scientists, teachers, and students engaged in the design process of material selection and material elimination. While focused on mechanical properties for structural design, the physical properties that are germane to corrosion behavior and electrical applications are represented. Two-thirds of the book is devoted to datasheets for individual alloys which provide a handy quick reference to specific properties and performance. The remainder of the book addresses topics common to all magnesium alloys such as the alloy designation system and product forms. Casting alloys and wrought alloys are compared. The alloy performance at elevated temperature is presented, as are fatigue properties. Finally, a summary of the corrosion behavior of selected alloys is discussed along with how these corrosion mechanisms can be applied for beneficial results.

Materials for Engineering

A junior-senior level text and reference for use by materials engineers and mechanical engineers in courses entitled advanced physical metallurgy.