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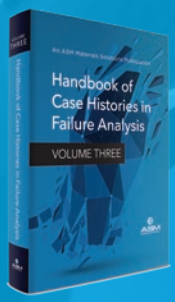

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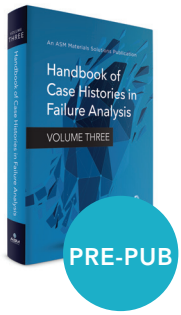

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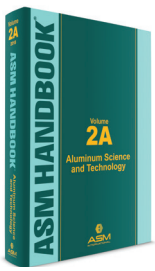

ASM Handbook, Volume 2A: Aluminum Science and Technology

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ISTFA™ 2019

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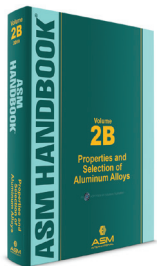

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Edited by Kevin Anderson, John Weritz, and J. Gilbert Kaufman

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Product Code: 05452G

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Edited by John Shingledecker and Masao Takeyama

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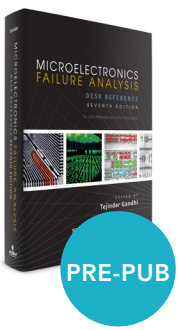

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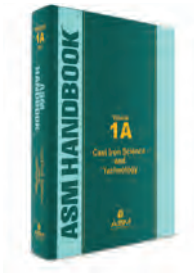

Volume 1A: Cast Iron Science and Technology

Edited by Doru M. Stefanescu

2017 • 772 pages

ISBN: 978-1-62708-133-7
Product Code: 05924G

Price: $345 / ASM Member: $259

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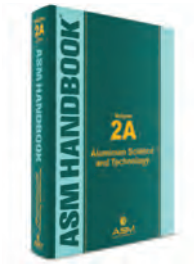


Volume 2A: Aluminum Science and Technology

Edited by Kevin Anderson, John Weritz, and J. Gilbert Kaufman

2018 • 855 pages

ISBN: 978-1-62708-158-0
Product Code: 05450G

Price: $345 / ASM Member: $259

This volume provides users of aluminum alloys with information on the processes, capabilities, and variables in producing and fabricating aluminum products. Beginning with the classification and underlying physical metallurgy of aluminum alloys, this handbook covers the technologies of aluminum casting, metalworking, composite processing, heat treating, surface treatment and joining.

Volume 2B: Properties and Selection of Aluminum Alloys

Edited by Kevin Anderson, John Weritz, and J. Gilbert Kaufman

2019 • 636 pages

ISBN: 978-1-62708-208-2
Product Code: 05452G

Price: $345 / ASM Member: $259

This volume provides in-depth coverage on the properties, performance, structural design, specifications, and development of aluminum alloys. The effects of alloy metallurgy, processing, and structure are described in detail for mechanical properties in design, fatigue and fracture resistance, corrosion and stress-corrosion cracking, and friction and wear. It includes new and expanded datasheets for over 120 specific grades or variations of commercial aluminum alloys. Volume 2B is an excellent companion to *ASM Handbook*, Volume 2A: *Aluminum Science and Technology*.

Volume 3: Alloy Phase Diagrams

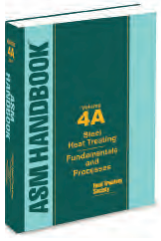
Edited by Hiroaki Okamoto, Mark E. Schlesinger, and Erik M. Mueller

2016 • 778 pages

ISBN: 978-1-62708-070-5
Product Code: 05442G

Price: $345 / ASM Member: $259

40% of this volume has been updated and now includes 1083 binary systems, 1095 binary diagrams, 115 ternary systems, and 406 ternary diagrams. New material on solid solutions and phase transformations; thermodynamics; isomorphous, eutectic, peritectic, and monotectic alloy systems; solid-state transformations; and intermediate phases has been added.



Volume 4A: Steel Heat Treating Fundamentals and Processes

Edited by Jon L. Dossett and George E. Totten

2013 • 784 pages

IBSN: 978-1-62708-011-8
Product Code: 05344G

Price: $345 / ASM Member: $259

This volume addresses the basics of steel heat treating and thoroughly covers the many steel heat treating processes. Major topics include: the physical metallurgy of steel heat treatment, fundamentals and practical aspects of steel hardness and hardenability, quenching, annealing, tempering, austempering, and martempering. The volume provides greatly expanded treatment of surface hardening by applied energy, carburizing, carbonitriding, nitriding, and diffusion coatings.

Volume 4B: Steel Heat Treating Technologies

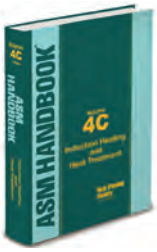
Edited by Jon L. Dossett and George E. Totten

2014 • 582 pages

ISBN: 978-1-62708-025-5
Product Code: 05434G

Price: $345 / ASM Member: $259

Volume 4B expands coverage on equipment, control, troubleshooting, and problems associated with steel heat treating. Articles extensively address distortion and the prevention of cracking – including the modeling and simulation of distortion. General process and procedure factors also are introduced—including temperature uniformity of furnaces, calculation of heat treating costs, and decarburization.



Volume 4C: Induction Heating and Heat Treatment

Edited by Valery Rudnev and George E. Totten

2014 • 820 pages

IBSN: 978-1-62708-012-5
Product Code: 05345G

Price: $345 / ASM Member: $259

This ASM Handbook gives design, manufacturing, and materials engineers an important reference. Written by internationally recognized experts, Volume 4C provides in-depth and comprehensive coverage on one of the most significant technologies in the metals processing industries. Covering the breadth and significance of induction heating and heat treatment technologies and applications, this ASM Handbook is a must-have addition to the bookshelf of any materials and manufacturing professional.

Volume 4D: Heat Treating of Irons and Steels

Edited by Jon L. Dossett and George E. Totten

2014 • 730 pages

ISBN: 978-1-62708-066-8
Product Code: 05352G

Price: $345 / ASM Member: $259

Packed with information and knowledge for anyone who uses or works with heat treated steels or cast irons. Written and reviewed by recognized authorities, this handbook includes in-depth articles with details on the processing and properties for all significant applications and types of heat treated ferrous alloys. Content includes updates on new alloys, expanded coverage on the effects of heat treating on the properties for more carbon and low-alloy steels, tool steels, stainless steels, and other high-alloy grades.

Volume 4E: Heat Treating of Nonferrous Alloys

Edited by George E. Totten

2016 • 712 pages

978-1-62708-112-2
Product Code: 05444G

Price: $345 / ASM Member: $259

This volume completes the series of five volumes on the major technological subject of heat treating. This singular work gives engineers, analysts, and technicians a one-stop source on the wide variety of nonferrous alloys. With expanded coverage on both the industrial practice and the science of heat treating, this handbook provides more practical information to guide processing requirements and the necessary background information for those without extensive prior knowledge.

Volume 5: Surface Engineering

Edited by C.M. Cotell, J.A. Sprague, and F.A. Smidt, Jr.

1994 • 1056 pages

ISBN: 978-0-87170-384-2
Product Code: 06125G

Price: $345 / ASM Member: $259

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Price: $345 / ASM Member: $259

Co-published by the Thermal Spray Society and ASM International. Replaces the *Handbook of Thermal Spray Technology,* edited by J.R. Davis (2004). Covers principles, processes, types of coatings, applications, performance, and testing/analysis. An excellent introduction and guidebook for those new to thermal spray. Expanded selection of applications includes electronics and semiconductors, automotive, energy, and biomedical. Prominent thermal spray markets such as aerospace and industrial gas turbines, and areas of growth such as advanced thermal barrier materials are also reviewed.

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Edited by Kenneth B. Tator

2015 • 545 pages

ISBN: 978-1-62708-081-1
Product Code: 05437G

Price: $345 / ASM Member: $259

This completely new volume addresses a need for comprehensive information on organic coatings, including coating materials, surface preparation, application processes, industrial uses, and coating evaluation and analysis methods. This volume is essential for industrial coating users, specifiers, and contractors. The content in this volume has been written and reviewed by leading industry experts, making this latest ASM Handbook the definitive resource on this important topic. Plus, Volume 5B is the first volume in the ASM Handbook series to be printed in full color.

Volume 6: Welding, Brazing and Soldering

Edited by D.L. Olson, T.A. Siewert, S. Liu, and G.R. Edwards

1993 • 1299 pages

ISBN: 978-0-87170-382-8
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Practical advice on consumable selection and procedure development, as well as joining fundamentals, processes, assemblies and selection. More than 500 illustrations and 400 tables.

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Edited by T. Lienert, T. Siewert, S. Babu, and V. Acoff

2011 • 936 pages

ISBN: 978-1-61503-133-7
Product Code: 05264G

Price: $345 / ASM Member: $259

A focused revision of the welding process information in Volume 6: *Welding, Brazing and Soldering* (1993). Updated and expanded articles on the fundamental principles of welding, including heat transfer, solidification, residual stress, and distortion. Workhorse methods of arc and resistance welding, friction stir welding, laser beam welding, explosive welding, and ultrasonic welding.

Volume 7: Powder Metallurgy

Edited by Prasan K. Samal and Joseph W. Newkirk

2015 • 907 pages

ISBN: 978-1-62708-089-3
Product Code: 05438G

Price: $345 / ASM Member: $259

Covers powder production and characterization, powder compaction, sintering, and compaction methods. Features new coverage of metal injection molding. Extensive coverage is provided of ferrous and nonferrous powder metallurgy materials. The format simplifies understanding of process and property relationships by treating each metal/alloy family in individual divisions.

Volume 8: Mechanical Testing and Evaluation

Edited by H. Kuhn and D. Medlin

2000 • 998 pages

ISBN: 978-0-87170-389-7
Product Code: 06772G

Price: $345 / ASM Member: $259

Mechanical properties and testing of metals, plastics, ceramics, and composites. Comparative mechanical properties and characteristics of materials included throughout. References to ISO, ASTM, DIN, EN, JIS and other standards.

Volume 9: Metallography and Microstructures

Edited by G.F. Vander Voort

2004 • 1184 pages

ISBN: 978-0-87170-706-2
Product Code: 06044G

Price: $345 / ASM Member: $259

Recommended for anyone who specifies, performs, monitors, evaluates, or uses metallurgical analysis for production QC, research, or educational training.

ASM Handbook, Volume 10: Materials Characterization

2019 • Approx. 800 pages

ISBN: 978-1-62708-211-2
Product Code: 05918G

Price: ~~$345~~ / ASM Member: ~~$259~~

Prepublication Price: $309 / ASM Member: $229

Prepublication price good through December 15!

Provides detailed technical information that will enable readers to select and use analytical techniques that are appropriate for their problem. Each article describing a characterization technique begins with an overview of the method in simplified terms and lists common applications as well as limitations. Sample size, form, and special preparation requirements are listed upfront to help readers quickly decide if the techniques are appropriate to solve their problem. Tables and charts listing the most common characterization methods for different classes of materials are included.

Volume 11: Failure Analysis and Prevention

Edited by R.J. Shipley and W.T. Becker

2002 • 1164 pages

ISBN: 978-0-87170-704-8
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Price: $345 / ASM Member: $259

General engineering aspects of failure prevention and fundamental root causes, materials selection, and role of design reviews. Features failures related to metals manufacturing operations and the role of life assessment methods in failure prevention. Learn the failure analysis process, principles, practices, tools, and techniques used to perform and evaluate failure analysis work and the causes, mechanisms, appearances, and prevention methodology for the four classic types of failure.

Volume 12: Fractography

1987 • 517 pages

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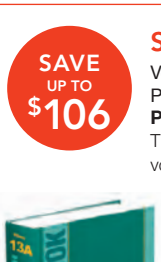
Over 1900 illustrations and fractographs, along with 41 tables, provide engineers with enhanced capability for recognizing and interpreting the various features of a fracture. Supplemental illustrations of failed metal-matrix composites, resin-matrix composites, polymers, and electronic materials.



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Three-volume update of the landmark 1987 Metals Handbook volume on corrosion.

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2003 • 1135 pages

ISBN: 978-0-87170-705-5
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Price: $345 / ASM Member: $259

Every article from the 1987 edition has been reviewed, revised, expanded, and updated. Six major sections: Fundamentals of Corrosion, Forms of Corrosion, Corrosion Testing and Evaluation, Methods of Corrosion Protection, Designing for Corrosion Control, and Prevention Tools for the Corrosionist.

Volume 13B: Corrosion: Materials

Edited by Stephen D. Cramer and Bernard S. Covino, Jr.

2005 • 703 pages

ISBN: 978-0-87170-707-9
Product Code: 06508G

Price: $345 / ASM Member: $259

48 peer-reviewed articles on how ferrous metals, nonferrous metals, and nonmetals are affected by various elements. Covers: processed materials, including thermal spray coatings, electroplated materials, and clad metals; special products, such as amorphous materials, intermetallics, and metal matrix composites; and nonmetallics, including ceramics, concrete, coatings, composites, and elastomers. Features article on global cost of corrosion and full-color gallery of corrosion damage.

Volume 13C: Corrosion: Environments and Industries

Edited by Stephen D. Cramer and Bernard S. Covino, Jr.

2006 • 1168 pages

ISBN: 978-0-87170-709-3
Product Code: 05145G

Price: $345 / ASM Member: $259

How corrosion impacts segments of the world economy – by environment and by industry sector. Provides answers to corrosion problems affecting your industry and ways to address corrosion issues in the environments that your equipment experiences. Over 250 leading authorities have written or reviewed articles in this volume.

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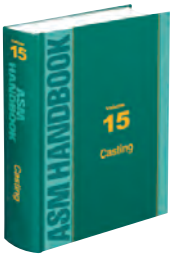
For manufacturing, materials, and design engineers. Covers the process-design relationships needed to select and control metalworking operations that produce shapes from forging, extrusion, drawing, and rolling methods.

Volume 14B: Metalworking Sheet Forming

Edited by S.L. Semiatin

2006 • 940 pages
ISBN: 978-0-87170-710-9
Product Code: 05120G
Price: $345 / ASM Member: $259

For product and production engineers. Methods of sheet metal fabrication technologies, selection of equipment and die materials, specification of forming practices for specific alloys, and new techniques for process design and control.



Volume 15: Casting

S. Viswanathan, Editorial Chair; D. Apelian, R. DasGupta, M. Gywn, J.L. Jorstad, R.W. Monroe, T.E. Prucha, M. Sahoo, E.S. Szekeres, and D. Twarog

2008 • 1256 pages
ISBN: 978-0-87170-711-6
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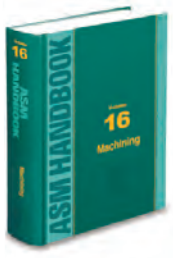
Price: $345 / ASM Member: $259

Molten metal processing, solidification behavior, modeling, molding, foundry practice, and casting properties. Basic steps and equipment are described for casting processes, along with their advantages, limitations, and applications.



Volume 16: Machining

1989 • 944 pages
ISBN: 978-0-87170-022-3
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Price: $345 / ASM Member: $259

1300 illustrations and 620 tables provide detailed descriptions of various machining and grinding processes. Guidelines for proper selection of cutting tool materials and cutting fluids.

Volume 17: Nondestructive Evaluation of Materials

Edited by Aquil Ahmad and Leonard J. Bond

2018 • 682 pages
ISBN: 978-1-62708-152-8
Product Code: 05511G
Price: $345 / ASM Member: $259

ASM Handbook, Volume 17 helps readers select, use, and interpret methods used to nondestructively test and analyze engineered products and assemblies. Digital technology is transforming the implementation of NDE and is covered extensively. New case studies and examples illustrate specific NDE techniques and give new insights which are needed to provide the data needed to solve many real-world NDE problems, to understand and measure early degradation, and to give the required data for remaining safe life or prognostic prediction.

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Edited by George E. Totten

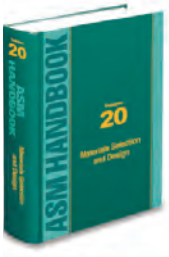
2017 • 1108 pages
ISBN: 978-1-62708-141-2
Product Code: 05510G
Price: $345 / ASM Member: $259

The 2017 edition of this volume is a comprehensive, up-to-date resource on surface engineering, lubrication, design, and materials selection strategies to improve the reliability and operational life of components. Engineers, researchers, analysts, materials scientists, and students will find in-depth practical insights, development trends, and solutions for improved engineering performance through informed materials selection, lubrication use, design, operation, and employment of surface treatments and coatings.

Volume 19: Fatigue and Fracture

1996 • 1057 pages
ISBN: 978-0-87170-385-9
Product Code: 06197G
Price: $345 / ASM Member: $259

Especially valuable in evaluating test data and knowing the key variables that affect results. Gain a better understanding of fracture mechanics to aid in life assessment and life extension of components.



Volume 20: Materials Selection and Design

Edited by G.E. Dieter

1997 • 901 pages
ISBN: 978-0-87170-386-6
Product Code: 06481G
Price: $345 / ASM Member: $259

Contributions from more than 100 experts involved with design, materials selection, and manufacturing. Covers metals, ceramics, polymers, and composites and provides case histories and examples.

Volume 21: Composites

Edited by D.B. Miracle and S.L. Donaldson

2001 • 1201 pages
ISBN: 978-0-87170-703-1
Product Code: 06781G
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2009 • 748 pages
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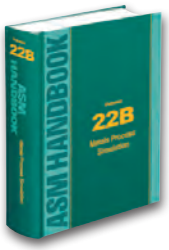
Development of metallic materials and process models that affect nearly every manufacturing industry. A solid foundation of the underlying physics that support many industrial simulation software packages.

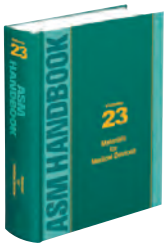


Volume 22B: Metals Process Simulation

Edited by David Furrer and Lee Semiatin

2010 • 724 pages
ISBN: 978-0-61503-005-7
Product Code: 05281G
Price: $345 / ASM Member: $259

Fundamentals include input data, thermophysical properties and their measurement, phase diagrams, and microstructure. Processes include solidification, casting, metal forming, machining, joining, and heat treatment. Design topics include design optimization, error propagation and uncertainty, and cost estimating.



Volume 23: Materials for Medical Devices

Edited by Roger Narayan

2012 • 396 pages
ISBN: 978-1-61503-827-5
Product Code: 05285G
Price: $345 / ASM Member: $259

Implant materials covered include stainless steels, cobalt-base alloys, titanium, shape memory alloys, noble metals, ceramics, and polymers. Sections on failure analysis, biotribology and implant wear, corrosion, and biocompatibility.

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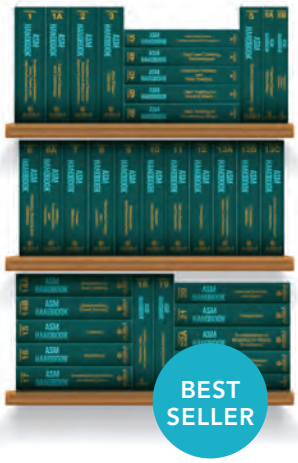

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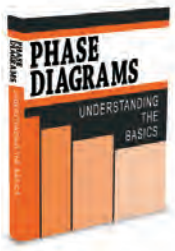
Note: Disc files cannot be copied. DVD must be present in the local machine for content access. Purchasers of previous ASM Handbook CD or DVD Complete Sets can receive a special upgrade discount. Contact the ASM Member Service Center for details. Does not include Volume 1A, Volume 2A, Volume 2B, Volume 10 (2019 edition), Volume 17 (2018 edition), or Volume 18 (2017 edition).

Metals Handbook® Desk Edition, 2nd Edition

Edited by J.R. Davis

1998 • 1521 pages
ISBN: 978-0-87170-654-6
Product Code: 06542G
Price: $345 / ASM Member: $259

The best of the ASM Handbook® series. A convenient source on the properties, selection, processing, testing, and characterization of metals and their alloys.



Phase Diagrams: Understanding the Basics

Edited by F.C. Campbell

2012 • 470 pages

ISBN: 978-1-61503-835-0
Product Code: 05342G

Price: $187 / ASM Member: $135

Exceptionally well-written text for non-metallurgists or anyone seeking a quick refresher on an essential tool in modern metallurgy. Ample illustrations for all important liquid and solid reactions. Gas-metal reactions, important in metals processing and in-service corrosion, are also discussed.

Joint EPRI-123HiMAT International Conference on Advances in High-Temperature Materials

Proceedings from EPRI's 9th International Conference on Advances in Materials Technology for Fossil Power Plants and 2nd International 123HiMAT Conference on High-Temperature Materials

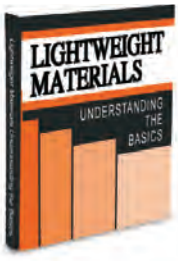
Edited by John Shingledecker and Masao Takeyama

2019 • Approx. 1500 pages

ISBN: 978-1-62708-271-6
Product Code: 06026G

Price: $187 / ASM Member $135

In 2019, EPRI and 123HiMAT combined efforts into a single premier global event for high temperature materials for power generation. Co-published by the Electric Power Research Institute (EPRI), the 123rd Committee on Heat Resisting Materials and Alloys (123HiMAT) of the Japan Society for the Promotion of Science (JSPS), and ASM International.



Lightweight Materials: Understanding the Basics

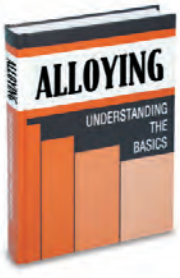
Edited by F.C. Campbell

2012 • 720 pages

ISBN: 978-1-61503-849-7
Product Code: 05355G

Price: $187 / ASM Member: $135

Learn the basics of aluminum, titanium, magnesium, beryllium, engineering plastics, polymer-, metal-, and ceramic-matrix composites, and structural ceramics. Includes basic metallurgy or materials science aspects of each material, as well as properties, processing, and applications. Guidelines for selecting materials for specific weight-critical applications.



Alloying: Understanding the Basics

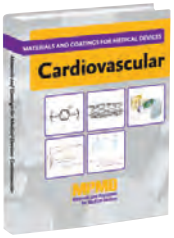
Edited by J.R. Davis

2001 • 647 pages

ISBN: 978-0-87170-744-4
Product Code: 06117G

Price: $187 / ASM Member: $135

A complete guide to the influence of alloy additions on mechanical properties, physical properties, corrosion and chemical behavior, and processing and manufacturing characteristics.



Materials and Coatings for Medical Devices: Cardiovascular

2009 • 452 pages

ISBN: 978-1-61503-000-2
Product Code: 05269G

Price: $307 / ASM Member: $231

A unique volume of engineering property data with detailed biological response information, in a consistent data sheet format, for the materials and coatings for cardiovascular medical devices. The emphasis is on materials and coatings used in FDA-approved implantable devices.

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Product Code: 05121G

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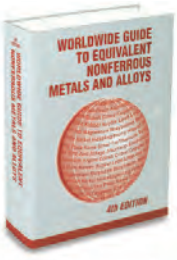
Standard worldwide designations for cast irons and steels, wrought carbon and alloy steels, plus stainless, high-strength, and tool steels. Entries for more than 30,000 alloy designations. Well over 5,000 entries have been updated and over 3,000 are new additions. Coverage for specifications and designations from Japan, China, India, and South Korea.



Worldwide Guide to Equivalent Nonferrous Metals and Alloys, 4th Edition

2001 • 1036 pages

ISBN: 978-0-87170-741-3
Product Code:06735G

Price: $307 / ASM Member: $231

Over 20,000 alloy designations, including a complete listing of UNS designations. Includes comprehensive treatment of current European and Japanese standards.

Thermodynamics of Microstructures

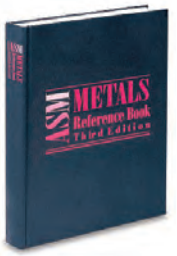
By Taiji Nishizawa, translated by Kiyohito Ishida

2008 • 308 pages

ISBN: 978-0-87170-716-1
Product Code: 05232G

Price: $207 / ASM Member: $155

Fundamental relationships governing the behavior of microstructures.



ASM Metals Reference Book, 3rd Edition

Edited by M.L. Bauccio

1993 • 614 pages

ISBN: 978-0-87170-478-8
Product Code: 06118G

Price: $167 / ASM Member: $125

Chemical compositions, physical and mechanical properties, manufacturing processes, applications, pertinent specifications and standards, and test methods.

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Edited by Arthur C. Reardon

2011 • 526 pages

ISBN: 978-1-61503-821-3
Product Code: 05306G

Price: $199 / ASM Member: $149

Provides a modern view of the basic principles and current practices of metallurgy. Recommended for anyone who uses, makes, buys or tests metal products. Answer all your basic metallurgy questions by using this updated reference featuring many illustrations, examples, and descriptions.

Named as an "Outstanding Academic Title." - *Choice: Current Reviews for Academic Libraries,* January 2013

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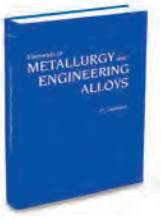


Elements of Metallurgy and Engineering Alloys

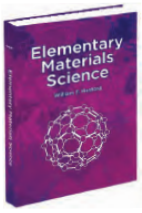
Edited by F.C. Campbell

2008 • 672 pages

ISBN: 978-0-87170-867-0
Product Code: 05224G

Price: $157 / ASM Member: $115

A thorough presentation of physical and mechanical metallurgical concepts along with a practical survey of all important metals, their alloys, and their engineering properties. Covers basic metallurgy, metallic material selection, and application.



Elementary Materials Science

By William F. Hosford

2013 • 188 pages

ISBN: 978-1-62708-002-6
Product Code: 05373G

Price: $83 / ASM Member: $65

An introduction to the subject of materials science with few equations. Intended primarily for students with limited science backgrounds and non-techinical professionals in the materials industry.

The History of Metals in America

By Charles R. Simcoe

Edited by Frances Richards

2018 • 256 pages

ISBN: 978-1-62708-145-0
Product Code: 05925G

Price: $115 / ASM Member: $86

This book chronicles the development of metals as both an industrial activity and a science. Progress involving structural metals made possible the air, land, sea, and space travel of today, skyscrapers reaching over 100 stories high, and many other engineering accomplishments that continue to shape modern society. Journey through the evolution of metals and metallurgy from the first iron plant in 1645 to the prevailing metals of the 21st century.

Transformations: Selected Works of G.B. Olson on Materials, Microstructure, and Design

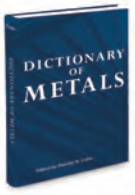
Edited by Carelyn E. Campbell, Michele V. Manuel, and Wei Xiong

2017 • 547 pages

ISBN: 978-1-62708-137-5
Product Code: 06838G

Price: $149 / ASM Member: $129

ASM International and The Minerals, Metals and Materials Society (TMS) have collaborated to present a collection of the selected works of Dr. Greg B. Olson in honor of his 70th birthday in 2017. This collection highlights his influential contributions to the understanding of martensite transformations and the development and application of a systems design approach to materials.



Dictionary of Metals

Edited by Harold M. Cobb

2012 • 374 pages

ISBN: 978-1-61503-978-4
Product Code: 05359G

Price: $157 / ASM Member: $115

Includes historical overview beginning with the seven metals of antiquity. Showcases each metallic element, the discoverer and date, naming and its meaning, major applications, significance of the discovery and physical properties.

FAILURE ANALYSIS

How to Organize and Run a Failure Investigation

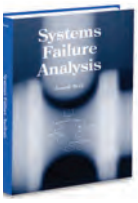
By Daniel P. Dennies

2005 • 223 pages

ISBN: 978-0-87170-811-3
Product Code: 05118G

Price: $167 / ASM Member: $125

Outlines a proven, systematic approach to failure investigation. Explains the relationship between various failure sources and the organization and conduct of the investigation.



Systems Failure Analysis

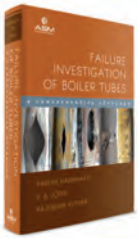
By Joseph Berk

2009 • 214 pages

ISBN: 978-1-61503-012-5
Product Code: 05278G

Price: $123 / ASM Member: $86

Learn how to prevent complex systems failures. Written for engineers, quality assurance specialitsts, and purchasing personnel in organizations that produce or procure complex systems in the aerospace, defense, automotive, biomedical, electronic, and related industries.



Failure Investigation of Boiler Tubes: A Comprehensive Approach

By Paresh Haribhakti, P.B. Joshi, and Rajendra Kumar

2018 • 436 pages

ISBN: 978-1-62708-156-6
Product Code: 05243G

Price: $220 / ASM Member: $165

This book covers properties and selection of materials for boiler tubes, damage mechanisms responsible for failure of boiler tubes, and characterization techniques employed for investigating failures of boiler tubes in thermal power plants and utility boilers of industrial/commercial/institutional boilers. Case studies based on the actual failures from the field are described, along with photographs and microstructures to allow for easy comprehension of the theory behind the failures.

The Failure Analysis Society

This affiliate society is dedicated to advancing the important role failure analysis plays in the materials science industry. FAS provides collaboration, networking, and educational opportunities for materials science professionals.

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Understanding How Components Fail, 3rd Edition

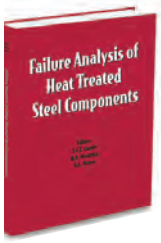
By Donald J. Wulpi
Edited by Brett Miller

2013 • 310 pages

ISBN: 978-1-62708-014-9
Product Code: 05363G

Price: $199 / ASM Member: $149

This third edition of the classic best seller preserves the content from previous editions – focusing on the metallurgical and materials evaluation for failure mode identification. Basic principles and practices are clearly explained. This is one of the first books new engineers and technicians should read.



Failure Analysis of Heat Treated Steel Components

Edited by L.C.F. Canale, R.A. Mesquita and G.E. Totten

2008 • 652 pages

ISBN: 978-0-87170-868-7
Product Code: 05113G

Price: $207 / ASM Member $155

Learn how to identify causes of failures, prevent future occurrences, and improve reliability. Numerous examples helpful to designers, engineers, metallurgists, mechanical and materials engineers, quality control technicians, and heat treaters. Special focus on the demands of tool steels and aerospace materials.

Life Lessons of a Failure Analyst

By McIntyre R. Louthan, Jr.

2016 • 202 pages

ISBN: 978-1-62708-110-8
Product Code: 05921G

Price: $29 / ASM Member: $22

This compilation of editorials written by popular instructor of the ASM course Metallurgy for the Non-Metallurgist™ and the former editor-in-chief of the *Journal of Failure Analysis and Prevention* is applicable to failure analysts and all others looking to achieve success in almost any career.

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Edited by K.A. Esaklul

1992 • 504 pages, 115 case histories
ISBN: 978-0-87170-453-5 • Product Code: 06340G
Price: $207 / ASM Member: $155

Handbook of Case Histories in Failure Analysis Volume 2

Edited by K.A. Esaklul

1993 • 583 pages, 120 case histories
ISBN: 978-0-87170-495-5 • Product Code: 06410G
Price: $207 / ASM Member: $155

Handbook of Case Histories in Failure Analysis Volume 3

2019 • Approx. 700 pages, 101 case histories
ISBN: 978-1-62708-239-6
Price: ~~$207~~ / ASM Member: ~~$155~~
Prepublication Price: $187 / ASM Member: $140

Examines cases of failure and the process by which they were analyzed, diagnosed, and resolved. Provides expert analysis and insight on a variety of materials, failure modes, root causes, and analytical techniques. Includes sections dedicated to specific components, industries, and other factors.

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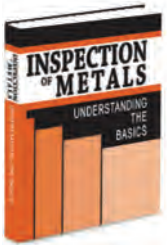
METALLOGRAPHY & MATERIALS CHARACTERIZATION



Inspection of Metals: Understanding the Basics

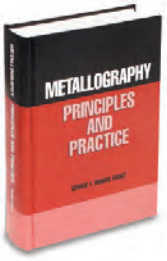
Edited by F.C. Campbell

2013 • 487 pages

ISBN: 978-1-62708-000-2
Product Code: 05372G

Price: $187 / ASM Member: $135

Emphasizes final part inspection at the manufacturing facility or on receipt at the user's facility. Provides an intermediate level overview to the different methods used to inspect metals and finished parts and a more detailed review of the specific inspection methods for important metal product forms. The advantages and limitations of each method are discussed, including when other methods may be warranted. Chapters on specific product forms (e.g., castings) compare the different inspection methods and why they are used.



Metallography: Principles and Practice

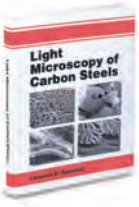
By G. Vander Voort

1984 • 752 pages

ISBN: 978-0-87170-672-0
Product Code: 06785G

Price: $177 / ASM Member: $135

A proven reference work for metallographers, engineers, and technicians as well as students. Thoroughly referenced and well-illustrated with an extensive collection of micrographs and macrographs.



Light Microscopy of Carbon Steels

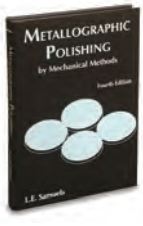
By L.E. Samuels

1999 • 502 pages

ISBN: 978-0-87170-655-3
Product Code: 06656G

Price: $237 / ASM Member: $175

"How to" book gives everyday working examples and discusses the relationship between the constitution, properties, and microstructure of various carbon steel products. Over 1,200 micrographs and 90 other figures.



Metallographic Polishing by Mechanical Methods, 4th Edition

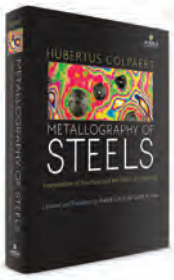
By L.E. Samuels

2003 • 345 pages

ISBN: 978-0-87170-779-6
Product Code: 06964G

Price: $157 / ASM Member: $115

ALSO SEE
ASM Handbook, Volume 9: Metallography and Microstructures, page 3



Metallography of Steels: Interpretation of Structure and the Effects of Processing

By Hubertus Colpaert

Updated and translated by André Luiz V. da Costa e Silva

2018 • 699 pages

ISBN: 978-1-62708-148-1
Product Code: 05922G

Price: $229 / ASM Member: $169

This book is a combination of a metallographic atlas for steels and cast irons and an introductory textbook covering the fundamentals of phase transformations and heat treatment of these materials. Every important stage of processing, from casting to cold working is clearly discussed and copiously illustrated with metallographs that show the obtained structures, both desired and those achieved when deviations occur. A valuable companion even for experienced steel practitioners.

Hardness Testing: Principles and Applications

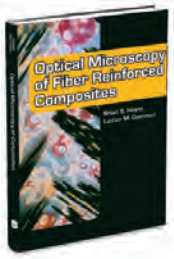
Edited by Dr. Konrad Herrmann, et al.

2011 • 262 pages

ISBN: 978-1-61503-832-9
Product Code: 05331G

Price: $157 / ASM Member: $115

Hardness testing of metals, plastics, rubber and other materials. Technical developments such as the introduction of image processing in the Brinell and Vickers method, the adaptation of hardness testing machines to process-oriented testing conditions, and the development of highly accurate and efficient calibration methods.



Optical Microscopy of Fiber-Reinforced Composites

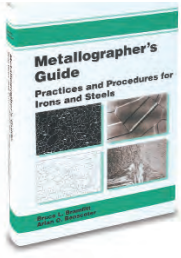
By Brian S. Hayes and Luther M. Gammon

2010 • 284 pages

ISBN: 978-1-61503-044-6
Product Code: 05303G

Price: $177 / ASM Member: $135

Optical microscopy is one of the most valuable, but under-utilized, tools for analyzing fiber-reinforced polymer matrix composites. Hands-on book covers: sample preparation, microscopic techniques, and applications. Over 180 full color images illustrate the technology's power to study the microstructure of heterogeneous, anisotropic materials.



Metallographer's Guide: Practices and Procedures for Irons and Steels

By B.L. Bramfitt and A.O. Benscoter

2002 • 354 pages

ISBN: 978-0-87170-748-2
Product Code: 06040G

Price: $257 / ASM Member: $185

Important metallurgical concepts related to the microstructures of irons and steels. More than 500 representative microstructures, and how they can be altered by heat treatment and other means.

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Atlas of Stress-Strain Curves, 2nd Edition

2002 • 816 pages

ISBN: 978-0-87170-739-0
Product Code: 06825G

Price: $349 / ASM Member: $259

More than 1400 curves normalized in appearance to aid making comparisons among materials. All diagrams include metric (SI) units, and many also include U.S. customary units captioned with standard designation, the primary source of the curve, mechanical properties, condition of sample, strain rate, test temperature, and alloy composition.

Tensile Testing, 2nd Edition

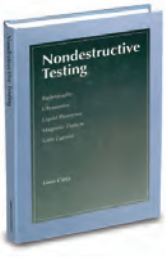
Edited by J.R. Davis

2004 • 283 pages

ISBN: 978-0-87170-806-9
Product Code: 05106G

Price: $137 / ASM Member: $105

A complete guide to the uniaxial tensile test, the cornerstone test for determining the mechanical properties of materials. Learn ways to predict material behavior through tensile testing, and how to test metals, alloys, composites, ceramics, and plastics to determine strength, ductility and elastic/plastic deformation.



Nondestructive Testing

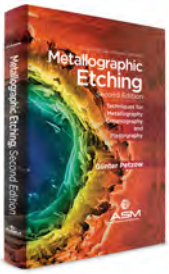
By L. Cartz

1995 • 229 pages

ISBN: 978-0-87170-517-4
Product Code: 06390G

Price: $107 / ASM Member: $75

Problems and defects of all kinds arise in the development and use of mechanical devices, electrical equipment, hydraulic systems, and transportation mechanisms. However, an extremely wide range of nondestructive testing (NDT) methods are available to help you examine these different problems and various defects in an assortment of materials under varying circumstances.



Metallographic Etching, 2nd Edition

By G. Petzow

1999 • 240 pages

ISBN: 978-0-87170-633-1
Product Code: 06670G

Price: $127 / ASM Member: $95

An outstanding source on etchants of all types and electrolytic polishing solutions used by metallographers to reveal the structure of nearly any material to be prepared and examined.

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Fatigue and Durability of Structural Materials

By S.S. Manson and G.R. Halford

2006 • 456 pages

ISBN: 978-0-87170-825-0
Product Code: 06987G

Price: $257 / ASM Member: $185

Focuses on metallic materials but also addresses unique capabilities of important nonmetals.

Fatigue and Durability of Metals at High Temperatures

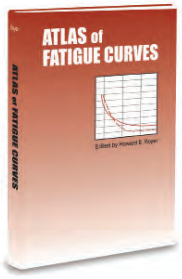
By S.S. Manson and G.R. Halford

2009 • 268 pages

ISBN: 978-0-87170-718-5
Product Code: 05206G

Price: $257 / ASM Member: $185

Written by preeminent experts, this work gives development engineers, students, and component designers an important reference on how to analyze time-dependent metal fatigue at high temperatures.



Atlas of Fatigue Curves

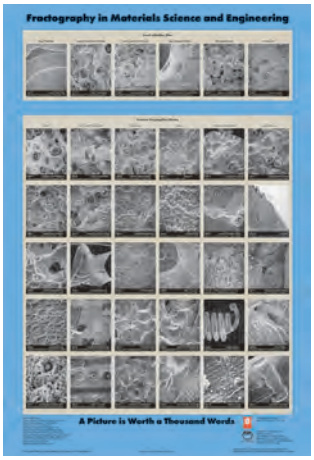
Edited by H.E. Boyer

1986 • 518 pages • Illustrated

ISBN: 978-0-87170-214-2
Product Code: 06156G

Price: $307 / ASM Member: $231

More than 500 fatigue curves for industrial ferrous and nonferrous alloys. Standard S-N curves, curves showing effect of surface hardening on fatigue strength, crack growth-rate curves, curves comparing the fatigue strengths of various alloys, effect of temperature, humidity, frequency, aging, environment and more.



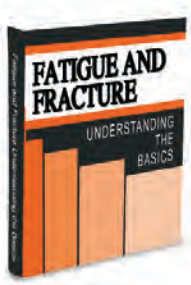
Fractography Poster

By Mohan D. Chaudhari

Product Code: 06568G

Price: $49 / ASM Member: $37

The ASM Fractography Poster is a ready reference of important surface-fracture appearances for crack initiation and propagation modes. The poster illustrates 36 common fracture modes with fractographs for several common structural steels, cast irons, superalloys, Ti-6Al-4V, copper alloys, and tungsten filament. It is designed to be a communication aid for engineers, students, and failure analysts when discussing product performance or failure modes. The poster is approximately 60 cm (2 ft) wide and 90 cm (3 ft) tall.



Fatigue and Fracture: Understanding the Basics

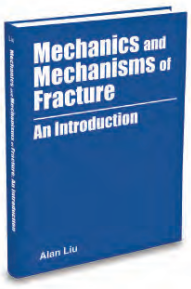
Edited by F.C. Campbell

2012 • 698 pages

ISBN: 978-1-61503-976-0
Product Code: 05361G

Price: $187 / ASM Member: $135

Covers mechanical properties of materials, differences between ductile and brittle fractures, fracture mechanics, the basics of fatigue, structural joints, high temperature failures, wear, environmentally-induced failures, and steps in the failure analysis process. Chapters devoted to fatigue and fracture of steels, aluminum alloys, titanium and titanium alloys, ceramics, polymers, and continuous fiber polymer matrix composites.



Mechanics and Mechanisms of Fracture: An Introduction

By A.F. Liu

2005 • 458 pages

"Recommended." - *Choice: Current Reviews for Academic Libraries,* June 2006

ISBN: 978-0-87170-802-1
Product Code: 06954G

Price: $167 / ASM Member: $125

Fundamental and practical concepts of fracture are described in terms of stress analysis and the mechanical behavior of materials.

Volume 19: Fatigue and Fracture

1996 • 1057 pages

ISBN: 978-0-87170-385-9
Product Code: 06197G

Price: $345 / ASM Member: $259

Especially valuable in evaluating test data and knowing the key variables that affect results. Gain a better understanding of fracture mechanics to aid in life assessment and life extension of components.

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Hot Working Guide: A Compendium of Processing Maps, Second Edition

Edited by Y.V.R.K. Prasad, K.P. Rao, and S. Sasidhara

2015 • 628 pages

IBSN: 978-1-62708-091-0
Product Code: 05445G

Price: $265 / ASM Member: $199

This is a unique source book with flow stress data for hot working, processing maps with metallurgical interpretation and optimum processing conditions for metals, alloys, intermetallics, and metal matrix composites. In the second edition, significant additions of maps on stainless steels, magnesium alloys, titanium alloys and nickel alloys have been made.

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Sheet Metal Forming: 2-Volume Set
Product Code: 05351G
Price: $327 / ASM Member: $245

Sheet Metal Forming: Fundamentals

Edited by Taylan Altan and A. Erman Tekkaya

2012 • 314 pages

ISBN: 978-1-61503-842-8
Product Code: 05340G

Price: $207 / ASM Member $155

Principal variables of sheet forming – including interactions between variables – are clearly explained, as a basic foundation for the most effective use of computer aided modeling in process and die design.

Sheet Metal Forming: Processes and Applications

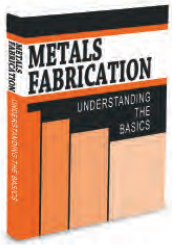
Edited by Taylan Altan and A. Erman Tekkaya

2012 • 382 pages

ISBN: 978-1-61503-844-2
Product Code: 05350G

Price: $207 / ASM Member: $155

The latest developments on the design of sheet forming operations, equipment, tooling, and process modeling.



Metals Fabrication: Understanding the Basics

By F.C. Campbell

2013 • 439 pages

IBSN: 978-1-62708-018-7
Product Code: 05374G

Price: $187 / ASM Member: $135

This book can be read and understood by anyone with a technical background. It is especially useful to those who deal with metals including designers, mechanical engineers, civil engineers, structural engineers, material and process engineers, manufacturing engineers, faculty, and materials science students. This volume covers the basics of metal fabrication, delving deep into the technology of metals fabrication.

Extrusion, 2nd Edition

Edited by M. Bauser, G. Sauer, and K. Siegert

2006 • 608 pages

ISBN: 978-0-87170-837-3
Product Code: 06998G

Price: $257 / ASM Member: $185

Overview of extrusion processes, equipment, and tooling. Metallurgical fundamentals of extrusion are covered in detail.

Cold and Hot Forging: Fundamentals and Applications

Edited by T. Altan, G. Ngaile and G. Shen

2005 • 341 pages

ISBN: 978-0-87170-805-2
Product Code: 05104G

Price: $207 / ASM Member: $155

Fundamentals of forging technology, principal variables of the forging process and their interactions, and computer-aided techniques such as finite-element analysis (FEA) for forging process and tooling design.

ASM Specialty Handbook® Tool Materials

Edited by J.R. Davis

1995 • 501 pages

ISBN: 978-0-87170-545-7
Product Code: 06506G

Price: $345 / ASM Member: $259

Casting Design and Performance

2009 • 272 pages

ISBN: 978-0-87170-724-6
Product Code: 05263G

Price: $197 / ASM Member: $145

For designers, manufacturing engineers, and purchasing personnel who specify and evaluate metal castings. General design principles with in-depth coverage on important design configurations of cast components, casting design influences in casting solidification and properties. Dynamic properties are described in detail for cast iron, steel, and aluminum.

Gear Materials, Properties, and Manufacture

Edited by J.R. Davis

2005 • 339 pages

ISBN: 978-0-87170-815-1
Product Code: 05125G

Price: $187 / ASM Member: $135

Overview of gears, lubrication and wear; in-depth treatment of metallic alloys (ferrous and nonferrous) and plastic gear materials; gear manufacturing methods (including metal removal, casting, forming, and forging); heat treatment; and failure analysis, fatigue life prediction and mechanical testing.

Handbook of Workability and Process Design

Edited by G.E. Dieter, H.A. Kuhn, and S.L. Semiatin

2003 • 414 pages

ISBN: 978-0-87170-778-9
Product Code: 06701G

Price: $247 / ASM Member: $185

Advanced High-Strength Steels: Science, Technology and Applications

By Mahmoud Y. Demeri

2013 • 312 pages

IBSN: 978-1-62708-005-7
Product Code: 05370G

Price: $167 / ASM Member: $125

A comprehensive examination of the types, microstructures, and attributes of AHSS as well as a review of current and future applications, the benefits, trends, and environmental and sustainability issues.

Engineering Properties of Steel

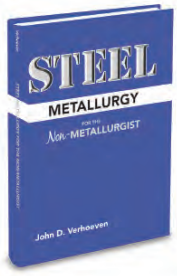
Edited by Philip Harvey

1982 • 509 pages

ISBN: 978-0-87170-144-2
Product Code: 06241G

Price: $157 / ASM Member: $115

Extensive data on properties of more than 425 steels are presented in a ready-reference format that makes information easy to find.



Steel Metallurgy for the Non-Metallurgist

By John D. Verhoeven

2007 • 225 pages

ISBN: 978-0-87170-858-8
Product Code: 05214G

Price: $123 / ASM Member: $86

A practical primer on steel metallurgy for those who select, heat, forge, or machine steel.

SAVE UP TO $70

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ASM Specialty Handbook® Steels, 2-Volume Set
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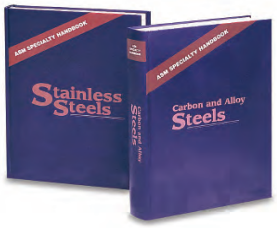
Price: $620 / ASM Member: $465



ASM Specialty Handbook® Stainless Steels

Edited by J.R. Davis

1994 • 576 pages

ISBN: 978-0-87170-503-7
Product Code: 06398G

Price: $345 / ASM Member: $259

Hundreds of figures and tables. Your single resource for stainless information.

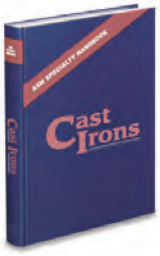
ASM Specialty Handbook® Carbon and Alloy Steels

Edited by J.R. Davis

1996 • 731 pages

ISBN: 978-0-87170-557-0
Product Code: 06611G

Price: $345 / ASM Member: $259



ASM Specialty Handbook® Cast Irons

Edited by J.R. Davis

1996 • 494 pages

ISBN: 978-0-87170-564-8
Product Code: 06613G

Price: $345 / ASM Member: $259

Basic information on metallurgy, solidification characteristics, and properties, as well as extensive reviews on the low-alloy gray, ductile, compacted graphite, and malleable irons.

See also *ASM Handbook,* Volume 1A: *Cast Iron Science and Technology* on page 1.

Steels: Processing, Structure, and Performance, 2nd Edition

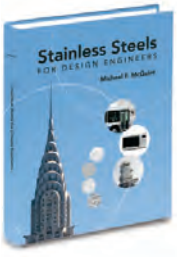
By George Krauss

2015 • 682 pages

ISBN: 978-1-62708-083-5
Product Code: 05441G

Price: $239 / ASM Member: $179

This is the essential information resource for anyone who makes, uses, studies, or designs with steel. The expanded and updated Second Edition emphasizes processing, alloying, microstructure, deformation, fracture, and properties of major steel types ranging from low-carbon sheet steels, pearlitic rail and wire steels, to quench and tempered medium- and high-carbon martensitic steels. Microstructural aspects of steelmaking, hardenability, tempering, surface hardening, and embrittlement phenomena have been updated.



Stainless Steels for Design Engineers

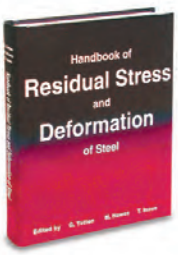
By Michael F. McGuire

2008 • 312 pages

ISBN: 978-0-87170-717-8
Product Code: 05231G

Price: $187 / ASM Member: $135

Addresses selection for corrosion resistance, processing, and major applications.



Handbook of Residual Stress and Deformation of Steel

Edited by G. Totten, M. Howes, and T. Inoue

2002 • 499 pages

ISBN: 978-0-87170-729-1
Product Code: 06700G

Price: $167 / ASM Member: $125

Recommended heat treating practices, methods for maintaining temperature uniformity during heating, tips for preventing oxide formation, and techniques for measuring residual stresses.

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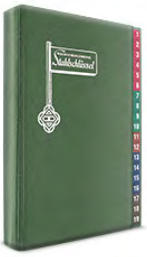


Stahlschlüssel (Key To Steel) 2016 Edition

By Verlag Stahlschlüssel Wegst GmbH

2016 • 895 pages

ISBN: 978-3-922599-32-6
Product Code: 05512G

Price: $249 / ASM Member: $215

Decipher steel designations and find equivalent materials worldwide. More than 70,000 standard designations and trade names from approximately 300 steelmakers and suppliers. Covers structural steels, tool steels, valve steels, high temperature steels and alloys, stainless and heat-resisting steels, and more. Standards and designations from 25 countries are cross-referenced. Text in English, French, and German.

Stahlschlüssel (Key To Steel) CD-ROM 2016 Edition

By Verlag Stahlschlüssel Wegst GmbH

2016

ISBN: 978-3-922599-33-3
Product Code: 05512C

Price: $689 / ASM Member: $605

(Single User Network Installation)

The CD version offers flexible and powerful capabilities, including the ability to search for steels by designation, chemical composition, and mechanical/physical properties.

Steel Castings Handbook, 6th Edition

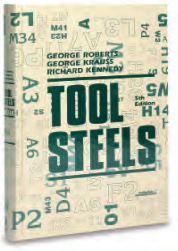
Co-published by Steel Founders' Society of America and ASM International

1995 • 472 pages

ISBN: 978-0-87170-556-3
Product Code: 06820G

Price: $233 / ASM Member: $175

Purchase, design, and manufacture of castings (including casting and molding, heat treatment, and quality assurance), materials selection for mechanical and chemical properties, and materials selection for processing properties.



Tool Steels, 5th Edition

By G. Roberts, G. Krauss, and R. Kennedy

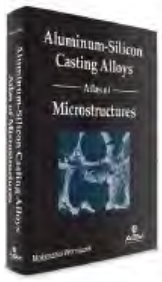
1998 • 364 pages

ISBN: 978-0-87170-599-0
Product Code: 06590G

Price: $207 / ASM Member: $155

Contains a significant amount of information from the past two decades presented in an easy-to-use outline format, making this a "must have" reference for engineers involved in tool-steel production, as well as in the selection and use of tool steels in metalworking and other materials manufacturing industries.

NONFERROUS METALS



Aluminum-Silicon Casting Alloys: Atlas of Microstructures

By Małgorzata Warmuzek

2016 • Approximately 186 pages

ISBN: 978-1-62708-108-5
Product Code: 05919G

Price: $199 / ASM Member: $149

This atlas provides engineers and researchers who work with aluminum castings with a practical and substantive tool for the visual analysis of the microscopic images of the microstructure of the aluminum casting alloys, as examined during routine laboratory procedures.

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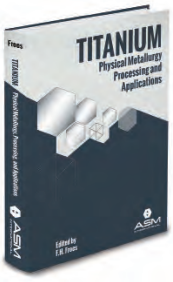
Aluminum-Silicon Casting Alloys: Atlas of Microstructures and Atlas of Microfractographs Set

By Małgorzata Warmuzek

Product Code: 05928G

Set Price: $278 / ASM Member: $213



Titanium: Physical Metallurgy, Processing, and Applications

Edited by F.H. Froes

2015 • 404 pages

ISBN: 978-1-62709-079-8
Product Code: 05448G

Price: $187 / ASM Member: $135

This book covers all aspects of the history, physical metallurgy, corrosion behavior, cost factors and current and potential uses of titanium. Extensive detail on extraction processes is discussed, as well as the various beta to alpha transformations and details of the powder metallurgy techniques.

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Properties of Aluminum 2-Volume Set
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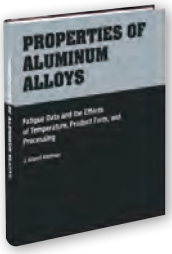


Properties of Aluminum Alloys: Fatigue Data and the Effects of Temperature, Product Form, and Processing

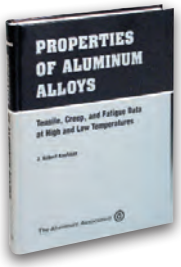
Edited by J.G. Kaufman

2008 • 574 pages

ISBN: 978-0-87170-839-7
Product code: 05156G

Price: $257 / ASM Member: $195

One of the most comprehensive collections of fatigue data yet available for aluminum alloys, temperatures, and products. The data, including over 1000 curves and numerous tables, are presented in a consistent format, conveniently arranged by alloy and temper.



Properties of Aluminum Alloys: Tensile, Creep, and Fatigue Data at High and Low Temperatures

Edited by J.G. Kaufman

1999 • 311 pages

ISBN: 978-0-87170-632-4
Product code: 06813G

Price: $257 / ASM Member: $195

Co-published by the Aluminum Association and ASM International.

TO ORDER, VISIT WWW.ASMINTERNATIONAL.ORG/REFERENCEPUBS OR CALL 800.336.5152

Aluminum Castings Engineering Guide

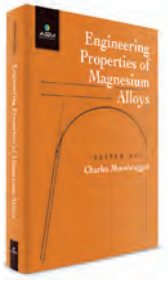
By Jagan Nath

2018 • 301 pages

ISBN: 978-1-62708-205-1
Product Code: 06841G

Price: $220 / ASM Member: $165

This practical guide to product and process engineering of various aluminum castings emphasizes process and material characteristics; product-process-alloy integration; manufacturing aspects of aluminum casting; product design features; tooling design, feeding and gating design; product quality needs and specifications; product launches; and successful conversions of aluminum from steel and iron. This book is a valuable tool for practical foundry personnel in aluminum die casting, gravity permanent mold casting, and low pressure permanent mold casting. It is also a beneficial reference for casting buyers and students specializing in metal casting technology.



Engineering Properties of Magnesium Alloys

Edited by Charles Moosbrugger

2017 • 184 pages

ISBN: 978-1-62708-143-6
Product Code: 05920G

Price: $199 / ASM Member: $149

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. Datasheets for individual magnesium alloys provide a handy quick reference to specific properties and performance. Topics such as the alloy designation system and product forms are addressed.

ASM Specialty Handbook® Aluminum and Aluminum Alloys

Edited by J.R. Davis

1993 • 784 pages

ISBN: 978-0-87170-496-2
Product Code: 06610G

Price: $345 / ASM Member: $259

See also *ASM Handbook,* Volumes 2A and 2B on this page.

ASM Specialty Handbook® Copper and Copper Alloys

Edited by J.R. Davis

2001 • 652 pages

ISBN: 978-0-87170-726-0
Product Code: 06605G

Price: $345 / ASM Member: $259

ASM Specialty Handbook® Heat-Resistant Materials

Edited by J.R. Davis

1997 • 591 pages • ISBN: 978-0-87170-596-9
Product Code: 06612G

Price: $345 / ASM Member: $259

ASM Specialty Handbook® Magnesium and Magnesium Alloys

Edited by M. Avedesian and H. Baker

1999 • 314 pages • ISBN: 978-0-87170-657-7
Product Code: 06770G

Price: $345 / ASM Member: $259

ASM Specialty Handbook® Nickel, Cobalt, and Their Alloys

Edited by J.R. Davis

2000 • 442 pages • ISBN: 978-0-87170-685-0
Product Code: 06178G

Price: $345 / ASM Member: $259

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Volumes 2A and 2B

Product Code: 06003G

Price: $620 / ASM Member: $465

Volume 2A: Aluminum Science and Technology

Edited by Kevin Anderson, John Weritz, and J. Gilbert Kaufman

2018 • 855 pages

ISBN: 978-1-62708-158-0
Product Code: 05450G

Price: $345 / ASM Member: $259

This volume provides users of aluminum alloys with information on the processes, capabilities, and variables in producing and fabricating aluminum products. Beginning with the classification and underlying physical metallurgy of aluminum alloys, this new handbook is a significant update and expansion of coverage on the technologies of aluminum casting, metalworking, composite processing, heat treating, surface treatment and joining. Updates address ongoing advances in high-integrity die castings, expanded coverage on surface treatment technologies, and contributions from experts in a wide variety of technological areas.

Volume 2B: Properties and Selection of Aluminum Alloys

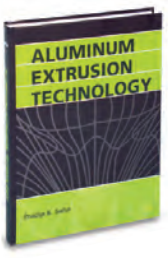
Edited by Kevin Anderson, John Weritz, and J. Gilbert Kaufman

2019 • 636 pages

ISBN: 978-1-62708-208-2
Product Code: 05452G

Price: $345 / ASM Member: $259

This volume provides in-depth coverage on the properties, performance, structural design, specifications, and development of aluminum alloys. The effects of alloy metallurgy, processing, and structure are described in detail for mechanical properties in design, fatigue and fracture resistance, corrosion and stress-corrosion cracking, and friction and wear. It includes new and expanded datasheets for over 120 specific grades or variations of commercial aluminum alloys. Volume 2B is an excellent companion to *ASM Handbook*, Volume 2A: *Aluminum Science and Technology.*



Aluminum Extrusion Technology

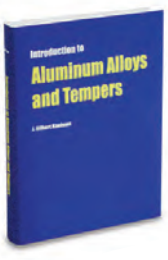
By P.K. Saha

2000 • 259 pages

ISBN: 978-0-87170-644-7
Product Code: 06826G

Price: $207 / ASM Member: $165

Practical information and reviews of important theoretical concepts in the different areas of extrusion technology. Intended for technical and engineering personnel, as well as research students in manufacturing.



Introduction to Aluminum Alloys and Tempers

By J.G. Kaufman

2000 • 258 pages

ISBN: 978-0-87170-689-8
Product Code: 06180G

Price: $43 / ASM Member: $32

Advantages and limitations of aluminum alloys and temper combinations in terms of the relationship of their composition, process history, and microstructure to service requirements.

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ASM Specialty Handbook 9-Volume Set

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Includes:

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- Tool Materials
- Cast Irons
- Copper and Copper Alloys
- Magnesium and Magnesium Alloys
- Stainless Steels

Beryllium Chemistry and Processing

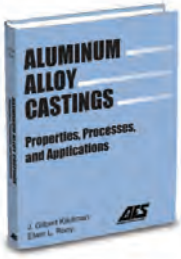
By K.A. Walsh • Edited by E.E. Vidal, A. Goldberg, E. Dalder, D.L. Olson, and B. Mishra

2009 • 680 pages

ISBN: 978-0-87170-721-5
Product Code: 05223G

Price: $257 / ASM Member: $191

Beryllium compounds of industrial interest, alloying, casting, powder processing, forming, metal removal, joining, and other manufacturing processes are covered. Environmental degradation of beryllium and its alloys both in aqueous and high temperature condition, plus health and environmental issues.



Aluminum Alloy Castings: Properties, Processes, and Applications

By J.G. Kaufman and E.L. Rooy

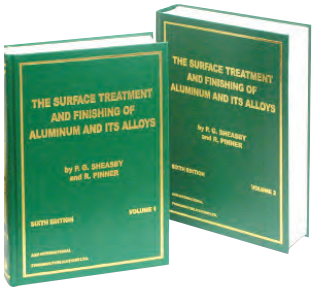
2004 • 340 pages

Co-published by ASM International and the American Foundry Society.

ISBN: 978-0-87170-803-8
Product Code: 05114G

Price: $257 / ASM Member: $185

Extensive collections of property and performance data, including aging response curves, growth curves, and fatigue curves.



The Surface Treatment and Finishing of Aluminum and Its Alloys, (2 Volume Book + CD)

By P.G. Sheasby and R. Pinner

2001 • 1387 pages

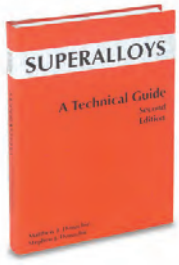
Co-published by Finishing Publications Ltd. and ASM International

Vol. 1 ISBN: 978-0-90447-721-4
Vol. 2 ISBN: 978-0-90447-722-1

CD ISBN: 978-0-90447-723-8
Product Code: 06945G

Price: $477 / ASM Member: $405

A comprehensive review and guide to surface engineering – cleaning, finishing, and coating – of aluminum and its alloys. Covers anodizing and coloring treatments. Two-volume set, including CD.



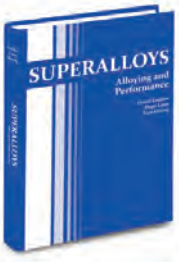
Superalloys: A Technical Guide, 2nd Edition

By M.J. Donachie and S.J. Donachie

2002 • 439 pages
ISBN: 978-0-87170-749-9
Product Code: 06128G

Price: $207 / ASM Member: $155

Covers virtually all technical aspects related to the selection, processing, use, and analysis of superalloys.



Superalloys: Alloying and Performance

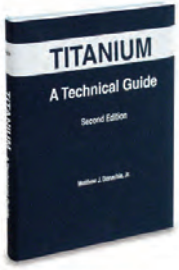
Blaine Geddes, Hugo Leon, and Xiao Huang

2010 • 176 pages

ISBN: 978-1-61503-040-8
Product Code: 05300G

Price: $107 / ASM Member: $75

An introduction for understanding the compositional complexity of superalloys and the wide range of alloys developed for specific applications. The basics of alloying, strengthening mechanisms, and structure of superalloys are explained in optimizing particular mechanical properties, oxidation/ corrosion resistance, and manufacturing characteristics such as castability, forgeability, and weldability.



Titanium: A Technical Guide, Second Edition

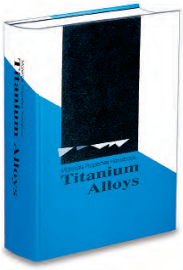
By M.J. Donachie, Jr.

2000 • 381 pages

ISBN: 978-0-87170-686-7
Product Code: 06112G

Price: $207 / ASM Member: $155

Significant features of the metallurgy and application of titanium and its alloys.



Materials Properties Handbook: Titanium Alloys

Edited by R. Boyer, E.W. Collings, and G. Welsch

1994 • 1169 pages

ISBN: 978-0-87170-481-8
Product Code: 06005G

Price: $357 / ASM Member: $265

The most comprehensive titanium data package ever assembled. Information on applications, physical properties, corrosion, mechanical properties, fatigue, fracture properties, and elevated temperature properties.

SET SALE!

Principles of Brazing and Principles of Soldering
Product Code: 05124G
Price: $287 / ASM Member: $215

Principles of Brazing

By David M. Jacobson and Giles Humpston

2005 • 268 pages

ISBN: 978-0-87170-812-0
Product Code: 05123G

Price: $167 / ASM Member: $125

Compares joining methods, explains the fundamental parameters of brazes, and surveys the metallurgy of braze alloy systems.

Principles of Soldering

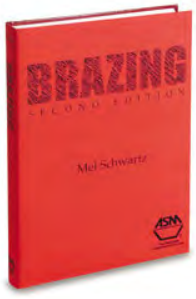
By Giles Humpston and David M. Jacobson

2004 • 271 pages

ISBN: 978-0-87170-792-5
Product Code: 06244G

Price: $167 / ASM Member: $125

The fundamental characteristics of solders, fluxes, and joining environments and the impact these have in the selection and successful use of soldering.



Brazing, 2nd Edition

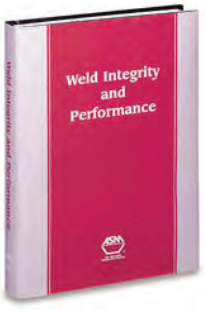
By M.M. Schwartz

2003 • 421 pages

ISBN: 978-0-87170-784-0
Product Code: 06955G

Price: $157 / ASM Member: $115

This popular book answers practical questions that arise in the application and use of brazing technology. A current and comprehensive resource on brazing fundamentals.



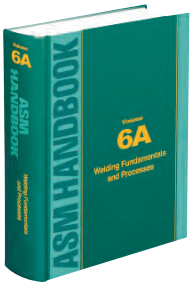
Weld Integrity and Performance

1997 • 417 pages

ISBN: 978-0-87170-600-3
Product Code: 06593G

Price: $207 / ASM Member: $155

For welding engineers, welders, metallurgists, and materials science engineers involved with the application, fabrication, and assessment of welded structures. Selected articles are compiled from various ASM International publications that deal with structural welds involving important ferrous and nonferrous engineering metals and alloys.



Volume 6A: Welding Fundamentals and Processes

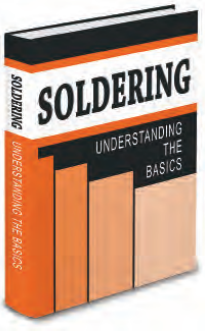
Edited by T. Lienert, T. Siewert, S. Babu, and V. Acoff

2011 • 936 pages

ISBN: 978-1-61503-133-7
Product Code: 05264G

Price: $345 / ASM Member: $259

A focused revision of the welding process information in Volume 6: *Welding, Brazing and Soldering* (1993). Updated and expanded articles on the fundamental principles of welding, including heat transfer, solidification, residual stress, and distortion. Workhorse methods of arc and resistance welding, friction stir welding, laser beam welding, explosive welding, and ultrasonic welding.



Soldering: Understanding the Basics

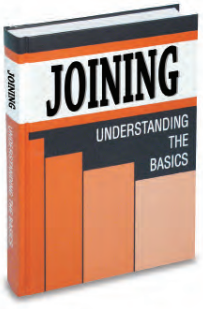
By M.M. Schwartz

2014 • 184 pages

IBSN: 978-1-62708-058-3
Product Code: 05338G

Price: $187 / ASM Member: $135

Covers various soldering methods and techniques as well as the latest on solder alloys, solder films, surface preparation, fluxes and cleaning methods, heating methods, inspection techniques, and quality control and reliability.



Joining: Understanding the Basics

Edited by F.C. Campbell

2011 • 346 pages

ISBN: 978-1-61503-825-1
Product Code: 05329G

Price: $187 / ASM Member: $135

Extends ASM's Understanding the Basics series into fabrication technologies. An introduction to welding, brazing, soldering, fastening, and adhesive bonding. Addresses metallurgical issues that must be understood during welding, including joining systems of materials that are the same, similar, or different.

Vacuum Heat Treatment: Applications, Equipment, and Operation

By Daniel H. Herring • Publisher: BNP Media

2016 • 1076 pages

ISBN: 978-0-692-76738-2
Product Code: 75192G

Price: $154.99 / ASM Member: $139.49

This book provides a wide range of useful practical and technical information to help readers make better decisions about their equipment, process, and service needs.

Atmosphere Heat Treatment

By Daniel H. Herring • Publisher: BNP Media

Volume 1: Principles, Applications, Equipment

2014 • 700 pages

ISBN: 978-0-692-28393-6
Product Code: 75149G

Price: $154.99 / ASM Member $139.49

Volume 1 emphasizes fundamental principles, materials, metallurgy, applications, and equipment.

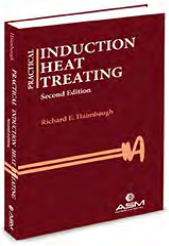
Volume 2: Atmospheres, Quenching, Testing

2015 • 824 pages

ISBN: 978-0-692-51299-9
Product Code: 75169G

Price: $154.99 / ASM Member $139.49

Volume 2 focuses on furnace atmospheres, quenching practices, testing, safety, conservation, maintenance, and specification compliance.



Practical Induction Heat Treating, Second Edition

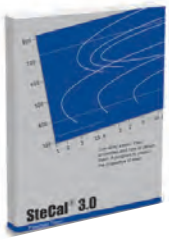
By R.E. Haimbaugh

2015 • 365 pages

ISBN: 978-1-62708-089-7
Product Code: 05505G

Price: $207 / ASM Member: $155

A quick reference source for induction heaters and ties in the metallurgy, theory, and practice of induction heat treating from a hands-on explanation of what floor people need to know. Includes updated information on quenching methods, applications, inspection for quality control and material on power supplies.



SteCal® 3.0 (CD + Booklet)

By P. Tarin and J. Pérez

2004 • Microsoft Windows format

ISBN: 978-0-87170-796-3
Product Code: 07482A

Price: $447 / ASM Member: $335

Use for predicting the properties obtained from heat treating low-alloy steels. An excellent tool for heat treaters to use in estimating and refining heat treating parameters for unfamiliar steels, or comparing the properties of two steels of different composition to arrive at the most appropriate composition for a particular application.

Heat Treatment of Gears: A Practical Guide for Engineers

By A.K. Rakhit

2000 • 209 pages

ISBN: 978-0-87170-694-2
Product Code: 06732G

Price: $167 / ASM Member: $125

Heat treat distortion of gears is discussed in detail for the major heat treat processes. A case history of each successful gear heat treat process is included.

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Atlas of Time-Temperature Diagrams, 2-Volume Set
Irons & Steels / Nonferrous Alloys
Product Code: 06191G

Price: $547 / ASM Member: $405

Atlas of Time-Temperature Diagrams

These two volumes comprise the most comprehensive collection of time-temperature diagrams. Each volume features commonly used curves as well as out-of-print and difficult-to-find data.

Irons and Steels

Edited by G. Vander Voort

1991 • 804 pages • 1839 diagrams

ISBN: 978-0-87170-415-3
Product Code: 06150G

Price: $307 / ASM Member: $231

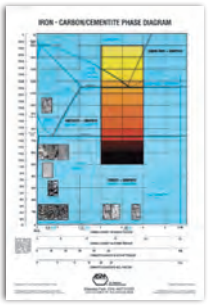
Nonferrous Alloys

Edited by G. Vander Voort

1991 • 474 pages • 500 diagrams

ISBN: 978-0-87170-428-3
Product Code: 06190G

Price: $307 / ASM Member: $231



Heat Treater's Color Poster

Product Code: 06423G

Price: $39 / ASM Member $29

The iron-carbon (Fe-C) phase diagram can be used as a map to chart the proper sequence of operations for heat treating of a given steel. This popular poster shows the iron-carbon/cementite equilibrium phase diagram, with representative microstructures for important phases. The poster is approximately 60 cm (2 ft) wide and 90 cm (3 ft) tall.

SAVE UP TO $69

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Heat Treater's Guides,
2-Volume Set Product Code: 06489G

Price: $629 / ASM Member: $469

Heat Treater's Guide: Practices and Procedures for Irons and Steels, 2nd Edition

1995 • 904 pages • ISBN: 978-0-87170-520-4
Product Code: 06400G

Price: $349 / ASM Member: $259

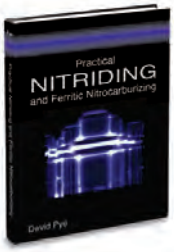
Each data sheet gives the chemical composition of the alloy, a listing of similar U.S. and foreign alloys, its characteristics, and the recommended heat treating procedure. Additional heat treating data is included, such as representative micrographs, isothermal transformation diagrams, cooling transformation diagrams, tempering curves, and data on dimensional change.

Heat Treater's Guide: Practices and Procedures for Nonferrous Alloys

1996 • 669 pages • ISBN: 978-0-87170-565-5
Product Code: 06325G

Price: $349 / ASM Member: $259

Quick access to recommended heat treating information for hundreds of nonferrous alloys, plus composition, trade names, common name, specifications (both U.S. and foreign), available product forms, and typical applications. Information is presented by alloy group in the datasheet format established in the companion edition on irons and steels.



Practical Nitriding and Ferritic Nitrocarburizing

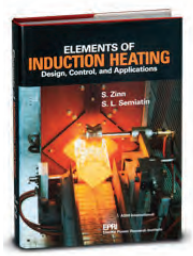
By David Pye

2003 • 256 pages

ISBN: 978-0-87170-791-8
Product Code: 06950G

Price: $207 / ASM Member: $155

This book will help you to understand nitriding and nitrocarburizing processes, select the appropriate process and process parameters, control the process, evaluate results, and troubleshoot.



Elements of Induction Heating: Design, Control, & Applications

By S. Zinn, S.L. Semiatin

1988 • 335 pages

ISBN: 978-0-87170-308-8
Product Code: 06522G

Price: $107 / ASM Member: $75

Surface Hardening of Steels: Understanding the Basics

Edited by J.R. Davis

2002 • 364 pages

ISBN: 978-0-87170-764-2
Product Code: 06952G

Price: $147 / ASM Member: $105

A practical selection guide to help engineers and technicians choose the most efficient surface hardening techniques that offer consistent and repeatable results. Emphasis is placed on processing temperature, case/coating thickness, bond strength, and hardness level obtained.

Practical Heat Treating, 2nd Edition

By J.L. Dossett and H.E. Boyer

2006 • 296 pages

ISBN: 978-0-87170-829-8
Product Code: 05144G

Price: $147 / ASM Member: $105

An excellent introduction and guide for design and manufacturing engineers, technicians, students, and others who need to understand why heat treatment is specified and how different processes are used to obtain desired properties. Clear, concise, and non-theoretical language.

COATINGS & SURFACE ENGINEERING

Volume 5B: Protective Organic Coatings

Edited by Kenneth B. Tator

2015 • 545 pages

ISBN: 978-1-62708-081-1
Product Code: 05437G

Price: $345 / ASM Member: $259

This completely new volume addresses a need for comprehensive information on organic coatings, including coating materials, surface preparation, application processes, industrial uses, and coating evaluation and analysis methods. This volume is essential for industrial coating users, specifiers, and contractors. The content in this volume has been written and reviewed by leading industry experts, making this latest ASM Handbook the definitive resource on this important topic. Plus, Volume 5B is the first volume in the ASM Handbook series to be printed in full color.

Surface Engineering for Corrosion and Wear Resistance

Edited by J.R. Davis

2001 • 279 pages

Co-published by IOM Communications and ASM International

ISBN: 978-0-87170-700-0
Product Code: 06835G

Price: $107 / ASM Member: $75

Provides practical information to help engineers select the best possible surface treatment for a specific corrosion or wear application. Covers process comparisons, and dozens of useful tables and figures compare surface treatment thickness and hardness ranges; abrasion and corrosion resistance; processing time, temperature, and pressure; costs; distortion tendencies; and other critical process factors and coating characteristics.

High Pressure Cold Spray: Principles and Applications

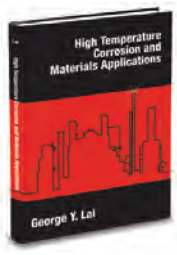
Edited by C.M. Kay and J. Karthikeyan

2016 • 324 pages

ISBN: 978-1-62708-096-5
Product Code: 05446G

Price: $199 / ASM Member: $179

A highly practical and useful "go-to" resource that presents an in-depth look at the high pressure cold spray process and describes applications in various industries. Applications of cold spray processes including protective coating production, development of performance enhancing layers, repair and refurbishing of parts, and NNS fabrication are elaborated in each industry with illustrative case studies by cold sprayers actively involved in the field.



High-Temperature Corrosion and Materials Applications

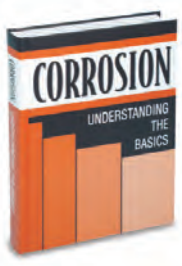
By George Y. Lai

2007 • 480 pages

ISBN: 978-0-87170-853-3
Product Code: 05208G

Price: $237 / ASM Member: $175

Covers oxidation, nitridation, carburization and metal dusting, corrosion by halogen and halides, sulfidation, erosion and erosion-corrosion, hot corrosion in gas turbines, boilers and furnaces, stress-assisted corrosion and cracking, molten salt corrosion, liquid metal corrosion and embrittlement, and hydrogen attack.



Corrosion: Understanding the Basics

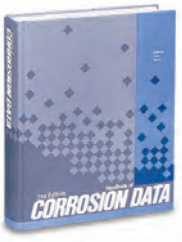
Edited by J.R. Davis

2000 • 563 pages

ISBN: 978-0-87170-641-6
Product Code: 06691G

Price: $229 / ASM Member: $169

A "how to" approach to understanding and solving the problems of corrosion of structural materials. Written for those with limited technical background. Provides more experienced engineers with a useful overview of the principles of corrosion and can be used as a general guide for developing a corrosion-control program.



Handbook of Corrosion Data, 2nd Edition

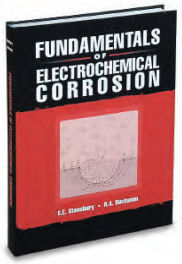
Edited by B. Craig and D. Anderson

1995 • 998 pages

ISBN: 978-0-87170-518-1
Product Code: 06407G

Price: $307 / ASM Member: $231

Includes "Corrosion of Metals and Alloys" and "Corrosion Media." The first part contains summaries on the general corrosion characteristics of major metals and alloys in various corrosion environments. The second part is organized alphabetically by chemical compound and the data for each corrosive agent/compound are in tabular form.



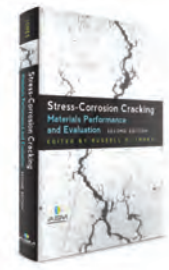
Fundamentals of Electrochemical Corrosion

By E.E. Stansbury and R.A. Buchanan

2000 • 487 pages

ISBN: 978-0-87170-676-8
Product Code: 06594G

Price: $157 / ASM Member: $115



Stress-Corrosion Cracking: Materials Performance and Evaluation, Second Edition

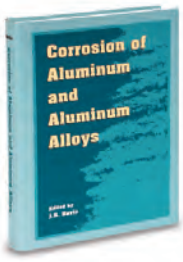
Edited by Russell H. Jones

2016 • 473 pages

ISBN: 978-1-62708-118-4
Product Code: 05509G

Price: $229 / ASM Member: $171

The second edition serves as a go-to reference on the complex subject of stress-corrosion cracking (SCC), offering information to help metallurgists, materials scientists, and designers determine whether SCC will be an issue for their design or application; and for the failure analyst to help determine if SCC played a role in a failure under investigation.



Corrosion of Aluminum and Aluminum Alloys

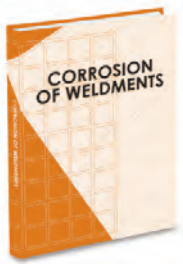
Edited by J.R. Davis

1999 • 313 pages

ISBN: 978-0-87170-629-4
Product Code: 06787G

Price: $167 / ASM Member: $125

Presents comprehensive coverage of the corrosion behavior of aluminum and aluminum alloys, with emphasis on practical information about how to select and process these materials in order to prevent corrosion attack.



Corrosion of Weldments

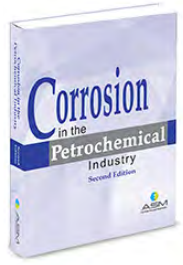
Edited by J.R. Davis

2006 • 236 pages

ISBN: 978-0-87170-841-0
Product Code: 05182G

Price: $207 / ASM Member: $155

Details the many forms of weld corrosion and the methods used to minimize weld corrosion.



Corrosion in the Petrochemical Industry, Second Edition

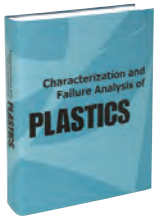
Edited by Victoria Burt

2015 • 426 pages

ISBN: 978-1-62708-094-1
Product Code: 05503G

Price: $219 / ASM Member: $165

A comprehensive guide to understanding and preventing corrosion in the petrochemical industry. Written for engineers, production managers and technicians, this book explains how to select the best material for a corrosion-sensitive petrochemical application, and how to choose among various prevention methods. Included in the second edition are new articles on corrosion inhibitors and high-temperature environments.



Characterization and Failure Analysis of Plastics

2003 • 482 pages
ISBN: 978-0-87170-789-5
Product Code: 06978G
Price: $247 / ASM Member: $185

Covers the performance of plastics and how it is characterized during design, property testing, and failure analysis. Selected by *Choice* magazine for its excellence in scholarship and presentation, the significance of its contribution to the field, and value as an important treatment of the subject.

Composite Filament Winding

Edited by S.T. Peters
2011 • 174 pages
ISBN: 978-1-61503-722-3
Product Code: 05286G
Price: $167 / ASM Member: $125

Topics include capabilities and limitations of filament winding, practical issues such as fiber and resin handling, winding theory, software and numerical control, history of the process, and more.

Optical Microscopy of Fiber-Reinforced Composites

By Brian S. Hayes and Luther M. Gammon
2010 • 284 pages
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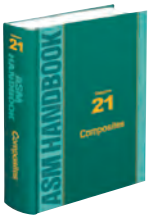

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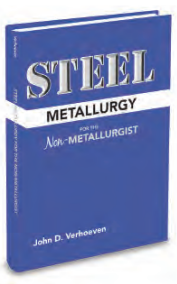

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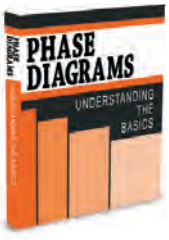

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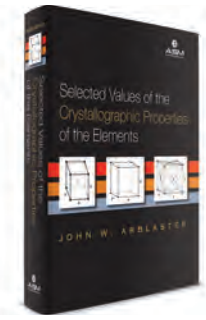

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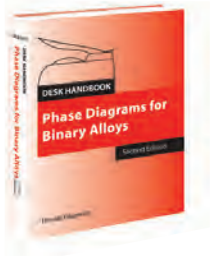

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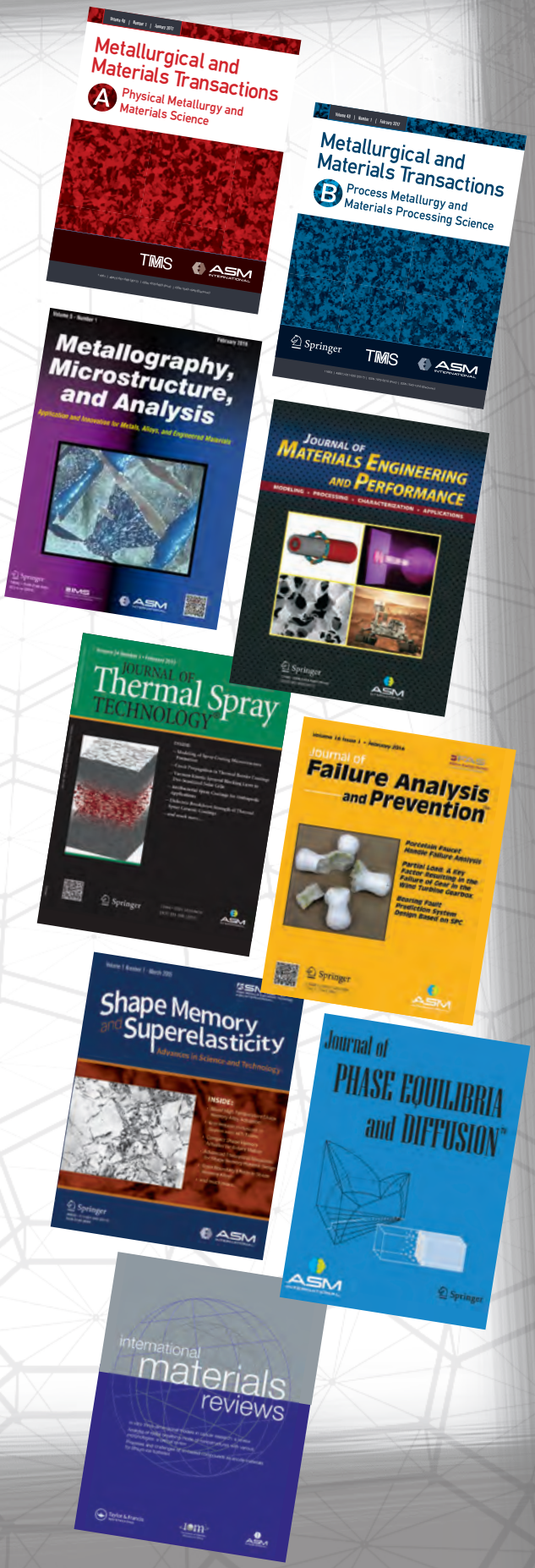

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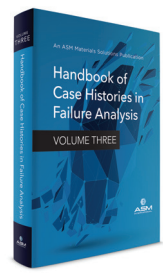

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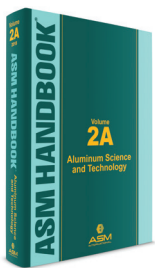

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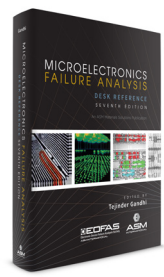

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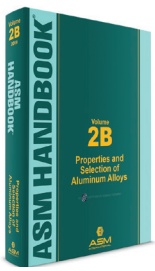

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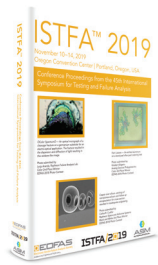

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