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Modern Ceramic
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Modern
Ceramic

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***This reference
reveals the most
significant
technologies,
procedures, and***

Acces PDF
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***trends in the
design and
application of
actuator devices
for
micromechatronic
systems. It
addresses critical
design and
manufacturing
concepts, as well
as challenges in
the modeling and***

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***regulation of
electromechanical
losses and heat
generation in
actuator devices.***

***Accompanied by a
CD-ROM***

***demonstrating
examples of finite-
element modeling
and previously
developed and
commercially***

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available

actuators,

Micromechatronic

s provides insight

into the future of

this evolving field,

and considers

recent

developments in

micropositioning

technology and

displacement

transducer, motor,

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**and ultrasonic
motor**

applications.

**Many believe that
the**

**silicon/information
age is heading to
the Age of Biology
and that the next
frontier in**

**ceramics will most
likely require
molecular level or**

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nanoscale control.

What, then, is the

role of ceramics in

the age of

biology? As we

change from an

energy-rich

society to an

energy-declining

society, how can

ceramic materials

appease the

problem? This new

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edition of

Chemical

Processing of

Ceramics offers a

scientific and

technological

framework for

achieving creative

solutions to these

questions. Edited

by experts and

containing

chapters by

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leading researchers in the field, the book uses an interdisciplinary approach to cover topics ranging from starting materials to device applications. The book begins with a discussion of starting material,

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***highlighting how
to prepare and
modify them in the
nanoscale range.***

***The chapter
authors discuss
the synthesis,
characterization,
and behavior of
ceramic powders,
the processing of
ceramic films via
sol-gel technique,***

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***and the fabrication
of nonoxide
ceramics. They
also present
coverage of
several specific
thin films,
membranes,
ferroelectrics,
bioceramics,
dielectrics,
batteries, and
superconductors.***

Acces PDF
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***Although the book
is edited, it is
organized to
reflect the
chemical
sequence of
ceramic
processing and
the coherent
theme of chemical
processing for
advanced ceramic
materials. The***

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coverage of molecular/nanoprocessing techniques that result in new materials will enable researchers and engineers to meet the challenge of producing inorganic materials for use in the applications of the future.

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***Ceramic materials
have proven
increasingly
important in
industry and in the
fields of
electronics,
communications,
optics,
transportation,
medicine, energy
conversion and
pollution control,***

Acces PDF
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*aerospace,
construction, and
recreation.*

*Professionals in
these fields often
require an
improved
understanding of
the specific
ceramics materials
they are using
Reflecting the fast
pace of research in*

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Type

***the field, the
Second Edition of
Bulk Metallic
Glasses has been
thoroughly
updated and
remains essential
reading on the
subject. It
incorporates major
advances in glass
forming ability,
corrosion***

Acces PDF
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Type

***behavior, and
mechanical
properties. Several
of the newly
proposed criteria
to predict the
glass-forming
ability of alloys
have been
discussed. All
other areas
covered in this
book have been***

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updated, with special emphasis on topics where significant advances have occurred. These include processing of hierarchical surface structures and synthesis of nanophase composites using the chemical

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***behavior of bulk
metallic glasses
and the
development of
novel bulk metallic
glasses with high-
strength and high-
ductility and
superelastic
behavior. New
topics such as
high-entropy bulk
metallic glasses,***

nanoporous alloys, novel nanocrystalline alloys, and soft magnetic glassy alloys with high saturation magnetization have also been discussed. Novel applications, such as metallic glassy screw bolts,

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Type

***surface coatings,
hyperthermia
glasses, ultra-thin
mirrors and
pressure sensors,
mobile phone
casing, and
degradable
biomedical
materials, are
described.***

***Authored by the
world's foremost***

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Type

***experts on bulk
metallic glasses,
this new edition
endures as an
indispensable
reference and
continues to be a
one-stop resource
on all aspects of
bulk metallic
glasses.***

***Structural
Ceramics***

Page 21/180

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Type

***Photosensitive
Glass and Glass-
Ceramics
Ceramic
Processing and
Sintering
Modern Physical
Metallurgy
Processes,
Properties, and
Applications***

A

Acces PDF

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Type

comprehensive
reference on
the

properties,
selection,
processing,
and

applications
of the most
widely used
nonmetallic
engineering

Acces PDF
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materials.

Richerson File
Type
Section 1,
General

Information
and Data,
contains
information
applicable
both to
polymers and
to ceramics
and glasses.

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It includes an illustrated glossary, a collection of engineering tables and data, and a guide to materials selection.

Sections 2
through 7

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focus on
polymeric mate
Richerson File
Type
rials--plastic
s, elastomers,
polymer-matrix
composites,
adhesives, and
sealants--with
the
information
largely
updated and

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Type

expanded from
the first

three volumes

of the

Engineered

Materials

Handbook.

Ceramics and

glasses are

covered in

Sections 8

through 12,

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also with
updated and
expanded
information.

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Book News,
Inc.,
Portland, OR

This third
edition of
what has

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become a
modern classic
presents a
lively
overview of
Materials
Science which
is ideal for
students of
Structural
Engineering.
It contains

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Type

chapters on
the structure
of engineering
materials, the
determination
of mechanical
properties,
metals and
alloys,
glasses and
ceramics,
organic

Acces PDF
Modern Ceramic
Engineering By
polymeric
Richerson File
materials and
Type
composite
materials. It
contains a
section with t
hought-
provoking
questions as
well as a
series of
useful

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appendices.

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Tabulated data
in the body of
the text, and
the
appendices,
have been
selected to
increase the
value of
Materials for
engineering as

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a permanent
source of
reference to
readers
throughout
their
professional
lives. The
second edition
was awarded
Choice's
Outstanding

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Academic Title

Richerson File

award in 2003.

Type

This third

edition

includes new

information on

emerging

topics and

updated

reading lists.

A handy

reference for

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technicians
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Type

who want to
understand the
nature,
properties and
applications,
of engineering
ceramics. The
book meets the
needs of those
working in the
ceramics

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industry, as well as of technicians and engineers involved in the application of ceramic materials. This book takes a modern, all-

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inclusive look
at
manufacturing
processes. Its
coverage is
strategically
divided—65%
concerned with
manufacturing
process
technologies,
35% dealing

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with

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engineering

materials and

production

systems.

Properties,

Processing,

and Use in

Design, Fourth

Edition

Enabling New

Designs

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Graphite and
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Fundamentals
of Modern
Manufacturing
Functionally
Graded
Materials

*Put a New Class of
Structural Composites
to Use Real Solutions
for Predicting Load*

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Engineering By

*Initially designed as
thermal barrier
materials for*

aerospace

applications and

fusion reactors,

functionally graded

materials (FGMs) are

now widely employed

as structural

components in

extremely high-

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temperature
Richerson File
environments.
Type

However, little information is commonly available that would allow engineers to predict the response of FGM plates and shells subjected to thermal and mechanical loads. Functionally

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Type

*Graded Materials:
Nonlinear Analysis
of Plates and Shells is
the first book devoted
to the geometrically
nonlinear response of
inhomogeneous
isotropic and
functionally graded
plates and shells.*

*Concerned that the
high loads common*

Acces PDF
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Engineering By

to many structures

may result in

nonlinear

load–deflection

relationships due to

large deformations,

author Hui-Shen

Shen has been

conducting

investigations since

2001, paying

particular attention to

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the nonlinear response of these plates and shells to nonlinear bending, postbuckling and nonlinear vibration. Nearly all the solutions presented are the results of investigations conducted by the author and his

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collaborators. The rigor of these investigative procedures allows the results presented within these pages to stand as a benchmark against which the validity and accuracy of other numerical solutions may be measured

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Modern Physical Metallurgy, Fourth Edition discusses the fundamentals and applications of physical metallurgy. The book is comprised of 15 chapters that cover the experimental background of a metallurgical

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phenomenon. The text first talks about the structure of atoms and crystals, and then proceeds to dealing with the physical examination of metals and alloys. The third chapter tackles the phase diagrams and solidifications, while

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the fourth chapter covers the thermodynamics of crystals. Next, the book discusses the structure of alloys. The next four chapters deal with the deformations and defects of crystals, metals, and alloys. Chapter 10 discusses

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Engineering By
*work hardening and
annealing, while*

*Richerson File
Type*
Chapters 11 and 12
cover phase

*transformations. The
succeeding two*

*chapters talk about
creep, fatigue, and*

*fracture, while the
last chapter covers*

oxidation and

corrosion. The text

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*will be of great use to
undergraduate*

*students of materials
engineering and other
degrees that deal with
metallurgical
properties.*

*A Comprehensive
and Self-Contained
Treatment of the
Theory and Practical
Applications of*

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Ceramic Materials

*When failure occurs
in ceramic materials,
it is often
catastrophic,
instantaneous, and
total. Now in its
Second Edition, this
important book arms
readers with a
thorough and
accurate*

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*understanding of the
causes of these*

failures and how to

design ceramics for

*failure avoidance. It
systematically covers:*

Stress and strain

Types of mechanical

behavior Strength of

defect-free solids

Linear elastic

fracture mechanics

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Engineering By

*Measurements of
elasticity, strength,
and fracture*

*toughness Subcritical
crack propagation*

*Toughening
mechanisms in
ceramics Effects of
microstructure on
toughness and*

*strength Cyclic
fatigue of ceramics*

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*Thermal stress and
thermal shock in
ceramics*

*Fractography
Dislocation and
plastic deformation
in ceramics Creep
and superplasticity of
ceramics Creep
rupture at high
temperatures and
safe life design*

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*Hardness and wear
And more While
maintaining the first
edition's reputation
for being an
indispensable
professional
resource, this new
edition has been
updated with
sketches,
explanations, figures,*

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*tables, summaries,
and problem sets to
make it more student-
friendly as a textbook
in undergraduate and
graduate courses on
the mechanical
properties of
ceramics.*

*"Updated to reflect
the many societal and
technological changes*

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*in the field since
publication of the
first edition,*

*Introduction to
Materials Science and
Engineering, Second
Edition offers an
interdisciplinary
view, emphasizing the
importance of
materials to
engineering*

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*applications, and
builds the basis
needed to select,
modify, and create
materials to meet
specific criteria.*

*Written for advanced
undergraduate
students and readers
interested in
introductory
materials science and*

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engineering concepts,

this concise textbook

provides a strong

foundation in MSE

and its applications.

The textbook offers a

solutions manual and

PowerPoint lecture

slides for adopting

professors"--

Engineering Ceramics

Introduction to

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Materials Science and

Engineering

*The Handbook of
Advanced Materials
Materials Science for
Engineers*

**This is a
concise, up-to-
date book that
covers a wide
range of**

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***important
ceramic
materials used
in modern
technology.
Chapters
provide
essential
information on
the nature of
these key
ceramic raw
materials***

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including their structure, properties, processing methods and applications in engineering and technology. Treatment is provided on materials such as alumina, aluminates,

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Andalusite, kyanite, and sillimanite. The chapter authors are leading experts in the field of ceramic materials. An ideal text for graduate students and practising engineers in

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Type

***ceramic
engineering,
metallurgy, and
materials
science and
engineering.
Most people
would be
surprised at
how ceramics
are used, from
creating
cellular phones,***

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radio,

Richerson File

television, and

Type

lasers to its

role in medicine

for cancer

treatments and

restoring

hearing. The

Magic of

Ceramics

introduces the

nontechnical

reader to the

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many exciting applications of ceramics, describing how ceramic material functions, while teaching key scientific concepts like atomic structure, color, and the

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electromagnetic spectrum.

With many illustrations from

corporations on the ways in which ceramics make advanced products

possible, the Second Edition also addresses

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***the newest
areas in
ceramics, such
as nanotechnol
ogy.***

***This book
contains
chapters on
nanocomposite
s for
engineering
hard materials
for high***

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Type

**performance
aircraft, rocket
and automobile
use, using laser
pulses to form
metal coatings
on glass and
quartz, and also
tungsten
carbide-cobalt
nanoparticles
using high
voltage**

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discharges. A major section of this book is largely devoted to chapters outlining and applying analytic methods needed for studies of nano composites. As such, this book

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***will serve as
good resource
for such
analytic
methods.
As the field's
premiere
source, this
reference is
extensively
revised and
expanded to
collect hard-to-***

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find

applications,

equations,

derivations,

and examples

illustrating the

latest

developments

in ceramic

processing

technology.

This book is

concerned

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***primarily with
the processing
of***

***polycrystalline
ceramics and
focuses on the
widespread
fabrication of
ceramics by the
firing of
consolidated
powders forms.
A brief***

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treatment of sol-gel processing is also included.

Ceramic

Processing and

Sintering,

Second Edition

provides clear

and intensive

discussions on

colloidal and sol-

gel processing,

sintering of

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ceramics, and
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***kinetic
processes in
materials. From
powder
synthesis and
consolidation to
sintering and
densification
behavior, this
latest edition
emphasizes the
impact of each***

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Modern Ceramic
Engineering By
processing
Richerson File
Type
*procedure on
ceramic*

*properties. The
second edition
also contains
new and
extended
discussions on
colloid stability,
polymer growth
and gelation,
additives in*

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**ceramic
forming,
diffusion and
defect
strucutre,
normal and
abnormal grain
growth,
microwave
sintering,
Rayleigh
instability
effects, and**

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**Ostwald
ripening.**

***Illustrating the
interconnected
ness between
the various
steps in the
overall
fabrication
route, Ceramic
Processing and
Sintering,
Second Edition***

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***approaches the
fundamental
issues of each
process and
show how they
are applied to
the practical
fabrication of
ceramics.***

***Properties,
Processing and
Use in Design
How Culture***

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**Transformed
Human
Evolution
Materials for
Engineering
AASHTO Guide
for Design of
Pavement
Structures,
1993
Properties and
Applications**

This highly
Page 80/180

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illustrated reference

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work covers the

Type

three principal types

of surface

technologies that

best protect

engineering devices

and products:

diffusion

technologies,

deposition

technologies, and

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Type

*other less commonly
acknowledged
surface engineering
(SE) techniques.*

*Various
applications are
noted throughout
the text and
additionally whole
chapters are devoted
to specific SE
applications across*

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*the automotive, gas
turbine engine*

(GTE), metal

machining, and

biomedical implant

sectors. Along with

the benefits of SE,

this volume also

critically examines

SE's limitations.

Materials

degradation

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pathways - those which can and those which cannot be mitigated by SE - are rigorously explained. Written from a scientific, materials engineering perspective, this concise text is supported by high-

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*quality images and
photo-micrographs*

which show how

surfaces can be

engineered to

overcome the limits

of conventionally

produced materials,

even in complex or

hostile operating

environments. This

book is a useful

Acces PDF
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resource for
Richerson File
Type
undergraduate and
postgraduate
students as well as
professional
engineers.
This book is
primarily an
introduction to the
vast family of
ceramic materials.
The first part is

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Type

*devoted to the basics
of ceramics and
processes: raw*

materials, powders

synthesis, shaping

and sintering. It

discusses traditional

ceramics as well as

“technical”

ceramics – both

oxide and non-oxide

– which have

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multiple developments. The second part focuses on properties and applications, and discusses both structural and functional ceramics, including bioceramics. The fields of abrasion, cutting and

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*tribology illustrate
the importance of
mechanical*

*properties. It also
deals with the
questions/answers
of a ceramicist
regarding
electronuclear
technology. As
chemistry is an
essential discipline*

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Engineering By
for ceramicists, the

book shows, in

particular, what soft

chemistry can

contribute as a

result of sol-gel

methods.

Chemical

Engineering

Volume 2 covers the

properties of

particulate systems,

including the character of individual particles and their behaviour in fluids.

Sedimentation of particles, both singly and at high concentrations, flow in packed and fluidised beds and filtration are then

examined. The latter part of the book deals with separation processes, such as distillation and gas absorption, which illustrate applications of the fundamental principles of mass transfer introduced

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*in Chemical
Engineering
Volume 1. In
conclusion, several
techniques of
growing importance
- adsorption, ion
exchange,
chromatographic
and membrane
separations, and
process*

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*intensification - are
described. A logical
progression of*

chemical

engineering

concepts, volume 2

builds on

fundamental

principles contained

in Chemical

Engineering volume

1 and these volumes

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*are fully cross-
referenced Reflects*

the growth in

complexity and

stature of chemical

engineering over the

last few years

Supported with

further reading at

the end of each

chapter and graded

problems at the end

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*of the book
Since the
publication of its
Third Edition, there
have been many
notable advances in
ceramic
engineering.*

*Modern Ceramic
Engineering,
Fourth Edition
serves as an*

Acces PDF
Modern Ceramic
Engineering By
*authoritative text
and reference for
both professionals
and students
seeking to
understand key
concepts of
ceramics
engineering by
introducing the
interrelationships
among the*

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structure,
Richerson File
properties,
Type
processing, design

*concepts, and
applications of
advanced ceramics.*

*Written in the same
clear manner that
made the previous
editions so
accessible, this
latest edition has*

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been expanded to include new information in almost every chapter, as well as two new chapters that present a variety of relevant case studies. The new edition now includes updated content on

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nanotechnology, the

use of ceramics in

integrated circuits,

flash drives, and

digital cameras, and

the role of

miniaturization that

has made our

modern digital

devices possible, as

well as information

on electrochemical

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ceramics, updated

Richerson File
discussions on

Type
LEDs, lasers and
optical applications,

and the role of
ceramics in energy

and pollution
control

technologies. It also
highlights the

increasing

importance of

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*modeling and
simulation.*
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Type

*MicroMechatronics
Processes and
Systems
Properties,
Processing, and Use
in Design, Third
Edition
Science and
Engineering
Porosity of*

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Ceramics
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Treatise on
Materials Science
and Technology,
Volume 29:
Structural
Ceramics presents
an overview of
structural
ceramics. This
book begins with a
survey of potential

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uses, designs, and

barriers of

particular types of

structural

ceramics. The

silicon carbide

family, silicon

nitride and sialon

family, and

transformation

toughened

ceramics are

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discussed in detail,
followed by an
analysis of the
various processing
routes of each
family of structural
ceramics. This
publication
concludes with a
review of the
tribology of
structural

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ceramics,

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considering many

Type
applications for

structural ceramics

in heat engines

and other

machinery that

involve moving

parts which must

often resist wear or

erosion. This

volume is

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recommended for
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Type
engineers,
scientists, and
researchers
concerned with
structural
ceramics.

This book will
discuss how glass
and glass ceramic
interact with light,
both transiently

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and permanently.

Ways that light permanently alter

the properties of

glass and glass

ceramic like the

color, refractive

index, and

mechanical and

chemical

behaviors will be

included. Each

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photochromatic
phenomenon will
be discussed in
detail from the
physical and
chemical origin to
the method
fabrication and
ultimately to their
utilization.

Focuses on the
effects of porosity

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and microcracking
on the physical
properties of

ceramics,

particularly

nominally single

phase ceramics.

The book

elucidates the

fundamental

interrelationships

determining the

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development and
use of materials for
actual and

potential

engineering

needs. It aims to

help in the

understanding of

porosity effects on

other materials,

from ceramic

composties,

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cements and
plasters to rocks,
metals and
polymers.; College
or university
bookshops may
order five or more
copies at a special
student price,
available on
request.

Ceramic materials

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have proven
increasingly
important in
industry and in the
fields of
electronics,
communications,
optics,
transportation,
medicine, energy
conversion and
pollution control,

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aerospace,
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construction, and
Type
recreation.

Professionals in
these fields often
require an
improved
understanding of
the specific
ceramics materials
they are using.

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Engineering, Third Edition helps provide this by introducing the interrelationships between the structure, properties, processing, design concepts, and applications of advanced

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ceramics. This
student-friendly
textbook

effectively links
fundamentals and
fabrication
requirements to a
wide range of
interesting
engineering
application
examples. A follow-

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up to our best-selling second edition, the new edition now includes the latest and most important technological advances in the field. The author emphasizes how ceramics differ

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from metals and organics and encourages the application of this knowledge for optimal materials selection and design. New topics discuss the definition of ceramics, the combinations of

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properties fulfilled
by ceramics, the
evolution of
ceramics

applications, and
their importance in
modern civilization.

A new chapter
provides a well-
illustrated review
of the latest
applications using

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ceramics and
discusses the
design

requirements that
the ceramics must
satisfy for each
application. The
book also updates
its chapter on
ceramic matrix
composites and
adds a new

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section on
statistical process
control to the
chapter on quality
assurance.

Modern Ceramic
Engineering, Third
Edition offers a
complete and
authoritative
introduction and
reference to the

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definition, history,
structure,

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processing, and

design of ceramics

for students and

engineers using

ceramics in a wide

array of industries.

A Concise

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Ceramics

Bulk Metallic

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Engineered
Materials
Handbook, Desk
Edition
Not By Genes
Alone
Ceramic and Glass
Materials
***Ceramic Materials:
Science and
Engineering is an***

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***up-to-date
treatment of
ceramic science,
engineering, and
applications in a
single,
comprehensive
text. Building on a
foundation of
crystal structures,
phase equilibria,
defects, and the
mechanical
properties of***

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ceramic materials,
Richerson File
students are

*shown how these
materials are*

*processed for a
wide diversity of
applications in
today's society.*

*Concepts such as
how and why ions
move, how*

*ceramics interact
with light and
magnetic fields,*

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and how they respond to temperature changes are discussed in the context of their applications. References to the art and history of ceramics are included throughout the text, and a chapter is devoted to

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Type:

***ceramics as
gemstones. This
course-tested text
now includes
expanded chapters
on the role of
ceramics in
industry and their
impact on the
environment as
well as a chapter
devoted to
applications of
ceramic materials***

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in clean energy technologies. Also

new are expanded sets of text-

specific homework problems and

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text.

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**Use in Design,
Third Edition** CRC
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This fifth edition of a successful textbook continues to provide students with an introduction to the basic principles of materials science over a broad range of topics. The authors have

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revised and
updated this
Richerson File
Ty
edition to include
many new
applications and
recently developed
materials. The
book is presented
in three parts. The
first section
discusses the
physics, chemistry,
and internal
structure of

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**materials. The
second part
examines the
mechanical
properties of
materials and their
application in
engineering
situations. The
final section
presents the
electromagnetic
properties of
materials and their**

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application. Each chapter begins with an outline of the relevance of its topics and ends with problems that require an understanding of the theory and some reasoning ability to resolve. These are followed by self-assessment questions, which

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test students'

*understanding of
the principles of
materials science
and are designed
to quickly cover
the subject area of
the chapter. This
edition of
Materials Science
for Engineers
includes an
expanded
treatment of many*

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**materials,
particulary
polymers, foams,
composites and
functional
materials. Of the
latter,
superconductors
and magnetics
have received
greater coverage
to account for the
considerable
development in**

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these fields in recent years. New sections on liquid crystals, superalloys, and organic semiconductors have also been added to provide a comprehensive overview of the field of materials science.

"The CD contains

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**data and
descriptive
material for
making detailed
thermodynamic
calculations
involving materials
processing"--Prefa
ce.**

**Chemical
Engineering
Volume 2
CRC Materials
Science and**

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**Engineering
Handbook
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Ceramic Materials
Solutions Manual
for Modern
Ceramic
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Written to
educate readers
about recent
advances in the

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area of new
materials used
in making
products.

Materials and
their
properties
usually limit
the component
designer. *

Presents
information
about all of

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these advanced materials that enable products to be designed in a new way *
Provides a cost effective way for the design engineer to become acquainted with new materials *

The material

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expert benefits
by being aware
of the latest
development in
all these areas
so he/she can
focus on
further
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Presents
certain key
aspects of
inelastic solid

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mechanics
centered around
viscoelasticity
, creep, viscop
lasticity, and
plasticity. It
is divided into
three parts
consisting of
the
fundamentals of
elasticity,
useful

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constitutive
laws, and
applications to
simple
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members,
providing
extended
treatment of
basic problems
in static
structural
mechanics,

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including elastic and inelastic effects. It contains worked-out examples and end-of-chapter problems. Ceramic materials have proven increasingly

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important in
industry and in
the fields of
electronics,
communications,
optics,
transportation,
medicine,
energy
conversion and
pollution
control,
aerospace,

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construction,
and recreation.

Professionals
in these fields
often require
an improved
understanding
of the specific
ceramics
materials they
are using.

Sintering of
Ceramics

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provides the
only
comprehensive
treatment of
the theories
and principles
of sintering
and their
application to
the production
of advanced
ceramics with
the required

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target

microstructure.

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the author's

bestselling

text, Ceramic

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properties, this
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features data verified
through major
professional societies
in the materials field,
such as ASM
International a
Humans are a
striking anomaly in
the natural world.*

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While we are similar to other mammals in many ways, our behavior sets us apart. Our unparalleled ability to adapt has allowed us to occupy virtually every habitat on earth using an incredible variety of tools and subsistence techniques. Our societies are larger,

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*more complex, and
more cooperative than
any other mammal's.*

*In this stunning
exploration of human
adaptation, Peter J.*

*Richerson and Robert
Boyd argue that only*

*a Darwinian theory
of cultural evolution
can explain these*

unique

characteristics. Not by

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Genes Alone offers a radical interpretation of human evolution, arguing that our ecological dominance and our singular social systems stem from a psychology uniquely adapted to create complex culture. Richerson and Boyd illustrate here that culture is

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*neither superorganic
nor the handmaiden
of the genes. Rather,
it is essential to
human adaptation, as
much a part of
human biology as
bipedal locomotion.
Drawing on work in
the fields of
anthropology,
political science,
sociology, and*

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economics—and building their case with such fascinating examples as kayaks, corporations, clever knots, and yams that require twelve men to carry them—Richerson and Boyd convincingly demonstrate that culture and biology are inextricably

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linked, and they show us how to think about their interaction in a way that yields a richer understanding of human nature. In abandoning the nature-versus-nurture debate as fundamentally misconceived, Not by Genes Alone is a truly original and

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*groundbreaking
theory of the role of
culture in evolution
and a book to be
reckoned with for
generations to come.
“I continue to be
surprised by the
number of educated
people (many of them
biologists) who think
that offering
explanations for*

human behavior in terms of culture somehow disproves the suggestion that human behavior can be explained in Darwinian evolutionary terms. Fortunately, we now have a book to which they may be directed for enlightenment It is a book full of

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good sense and the kinds of intellectual rigor and clarity of writing that we have come to expect from the Boyd/Richerson stable.”—Robin

Dunbar, Nature “Not by Genes Alone is a valuable and very readable synthesis of a still embryonic but very important subject

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*straddling the sciences
and humanities.”—E.*

*O. Wilson, Harvard
University*

*Humans first used
carbon as chars from
firewood in ritual
paintings and
primitive
metallurgical
processes. Natural
forms of carbon have
been known since*

antiquity, yet the knowledge of the carbon element in chemistry and its technical applications on a larger scale are a relatively recent development. The industrial revolution in Europe two centuries ago led the way to the numerous applications of these

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*graphitic forms that
are still used today.*

Type
Graphite and

Precursors features

short tutorial articles

on different topics

related to the science

and technology of

carbons intended for

engineers, students of

Materials Science and

scientists who are

seeking a

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fundamental understanding without "reinventing the wheel." This first volume of the World of Carbon book series focuses on graphite and its precursors, including its origin and various implications. The basic properties of hexagonal graphite

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are developed, and several theoretical and experimental approaches explain why this crystalline solid is fascinating in solid state physics. Also featured are the numerous applications connected to thermal, mechanical and chemical graphites, as

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well as their various industrial uses in polycrystalline form.

Finally, carbon precursors are introduced.

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provides a solid foundation for the non-materials major to understand the properties and limitations of materials. Easy to read and understand, it teaches the beginning engineer what to look for in a particular material, offers examples of

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materials usage, and

presents a balanced

view of theory and

science alongside the

practical and

technical applications

of material science.

Completely revised

and updated, this

second edition

describes the

fundamental science

needed to classify and

choose materials based on the limitations of their properties in terms of temperature, strength, ductility, corrosion, and physical behavior. The authors emphasize materials processing, selection, and property measurement methods, and take a

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*comparative look at
the mechanical
properties of various
classes of materials.
Chapters include
discussions of atomic
structure and bonds,
imperfections in
crystalline materials,
ceramics, polymers,
composites, electronic
materials,
environmental*

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processing. Filled
with case studies to
bring industrial
applications into
perspective with the
material being
discussed, the text also
includes a pictorial
approach to illustrate*

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*the fabrication of a
composite.*

*Consolidating
relevant topics into a
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concise source of
useful information
that can be easily*

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Surface Engineering

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