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**Catalysts In
Studies In Surface
Petroleum
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Studies In
Surface
Science And
Catalysis**

The organizers of
this Fifth

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Symposium
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maintained their
initial objectives,
namely to gather
experts from both
industries and
universities to
discuss the
scientific problems
involved in the
preparation of
heterogeneous

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catalysts, and to encourage as much as possible the presentation of research work on catalysts of real industrial significance.

Another highlight of these symposia was to reserve a substantial part of

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the program to
new developments
in catalyst
preparation, new
preparation
methods and new
catalytic systems.
The fact that
chemical reactions
which were hardly
conceivable some
years ago have

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Catalysis

become possible
today through the
development of
appropriate
catalytic systems
proves that
catalysis is in
constant progress.
The papers in this
volume deal with
studies of unit
operations in

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catalyst
preparation,
catalyst
preparation via the
sol-gel route,
preparation of
catalysts from
layered structures
and pillaring of
clays, preparation
and modification of
zeolite-based

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catalysts, carbon
supported
catalysts,
preparation of
oxidation catalysts
and novel and
unusual
preparation
methods.

Structure plays an
important role in
heterogeneous

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catalysis. It

provides a
framework for the
arrangement and

strategic
placement of key

catalytic elements,
hosting them in a

prescribed manner
so that their

respective
electronic

electronic

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properties can
exhibit their
desired catalytic
functions and
mutual

interactions. Under
reaction conditions
these framework
structures and
their catalytic
guests undergo
dynamic

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processes

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becoming active

participants of the

overall catalytic

process. They are

not mere static

geometric forms.

The dynamics of

catalytic structures

are particularly

vivid in selective

oxidation catalysis

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where the lattice of a given catalytic solid partakes as a whole, not only its surface, in the redox processes of the reaction. The catalyst becomes actually a participating reagent. By proper choice of key

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catalytic elements
and their host
structures,
preferred catalytic
pathways can be
selected over less
desired ones.

However, not only
in selective redox
catalysis does
structure play an
important role, its

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importance is also well documented, among others, in shape selective zeolite catalysis, enantioselective hydrogenation and hydrodesulfurization. The contributions presented in this book address the

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dynamic character
of the solid state
under catalytic
reaction

conditions. By
relating structure
to activity and
selectivity in
heterogeneous
catalysis our
understanding of
such correlations

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has been
significantly
enhanced through
the use of

sophisticated
spectroscopic
means, surface
science and
modeling.

Volume I contains
a brief review of
adsorption history

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and its
development for
practical purposes
up until now. It
also presents
some important
information on
adsorbents and
catalysts as well
as on the methods
of their
characterization.

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The part of this
volume dealing
with practical
industrial
applications
includes chapters
presenting
advanced
technical tools for
high capacity
adsorption
separation of liquid

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and gas mixtures,
development of
new adsorbents for
removal of
hazardous
contaminants from
combustion flue
gases and
wastewaters,
degasification of
coal seams and
fabrication of

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inorganic

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membranes and
Science And
their applications.

Catalysis
A comprehensive

review is also

included on

contemporary

utility of self-

assembled

monolayers,

adsorption proteins

and their role in

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modern industry,
adsorption
methods in
technology of
optical fibre
glasses, sol-gel
technology, solid
desiccant
dehumidification
systems, etc. The
articles give both
the scientific

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backgrounds of
the phenomena
discussed and
emphasize their
practical aspects.
The chapters give
not only brief
current knowledge
about the studied
problems, but are
also a source of
topical literature on

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the subject. A
comprehensive
bibliography on
adsorption

principles, design

data and

adsorbent

materials for

industrial

applications for the

period 1967-1997

concludes the

Get Free Catalysts In Petroleum Refining 1989 book.

The book provides
the most up-to-
date information
on testing and
development of
hydroprocessing
catalysts with the
aim to improve
performance of the
conventional and
modified catalysts

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as well as to
develop novel
catalytic
formulations.

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Besides diverse
chemical
composition,
special attention is
devoted to pore
size and pore
volume distribution
of the catalysts.

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Properties of the catalysts are discussed in terms of their suitability for upgrading heavy feeds. For this purpose atmospheric residue was chosen as the base for defining other heavy feeds

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which comprise
vacuum gas oil,
deasphalted oil
and vacuum

residues in
addition to topped
heavy crude and
bitumen. Attention
is paid to
deactivation with
the aim to extent
catalyst life during

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the operation. Into consideration is taken the loss of activity due to fouling, metal deposition, coke formed as the result of chemical reaction and poisoning by nitrogen bases.

Mathematical

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models were
reviewed focussing
on those which
can simulate

performance of the
commercial
operations.

Configurations of
hydroprocessing
reactors were
compared in terms
of their capability

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to upgrade various
heavy feeds
providing that a
suitable catalyst

was selected.

Strategies for
regeneration,
utilization and
disposal of spent
hydroprocessing
catalysts were
evaluated.

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Potential of the
non-conventional
hydroprocessing
involving
soluble/dispersed
catalysts and
biocatalysts in
comparison with
conventional
methods were
assessed to
identify issues

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which prevent commercial utilization of the former. A separate chapter is devoted to catalytic dewaxing because the structure of dewaxing catalysts is rather different than that of hydroprocessing

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catalysts, i.e., the objective of catalytic dewaxing is different than that of the conventional hydroprocessing, The relevant information in the scientific literature is complemented with the Patent

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literature covering
the development
of catalysts and
novel reactor

configurations.

Separate chapter
was added to

distinguish

upgrading

capabilities of the
residues catalytic

cracking

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processes from
those employing
hydroprocessing.

Upper limits on the
content of carbon
residue and metals
in the feeds which
can still be
upgraded by the
former processes
differ markedly
from those in the

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feeds which can be upgraded by hydroprocessing. It is necessary that the costs of modifications of catalytic cracking processes to accommodate heavier feeds are compared with that of hydroprocessing

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Objective of the
short chapter on
upgrading by
carbon rejecting
processes was to
identify limits of
contaminants in
heavy feeds
beyond which
catalytic upgrading
via

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hydroprocessing
becomes
uneconomical
because of the
costs of catalyst
inventory and that
of reactors and
equipment. -

Comprehensive
and most recent
information on
hydroprocessing

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catalysts for
upgrading heavy
petroleum feeds. -
Compares

conventional,
modified and novel
catalysts for
upgrading a wide
range of heavy
petroleum feeds. -
Comparison of
conventional with

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non-conventional
hydroprocessing,
the latter involving
soluble/dispersed
catalysts and
biocatalysts. -

Development and
comparison of
mathematical
models to simulate
performance of
catalytic reactors

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including most
problematic feeds.

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Catalysis
- Residues
upgrading by
catalytic cracking
in comparison to
hydroprocessing.
Materials, Methods
and Process
Innovations
Proceedings of
The...

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PETROLEUM
REFINING 1989;
STUDIES IN
SURFACE
SCIENCE AND
CATALYSIS -
Progress in
Catalysis
New
Developments in
Selective

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Oxidation by
Studies In Surface
Heterogeneous
Science And
Catalysis

**This book
covers the most
important
topics
concerning
cationic Ziegler-
Natta and ring-
opening
metathesis**

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**polymerization
of cycloolefins.**

**The work
describes the
major pathways
that
cycloolefins can
follow under
the action of
specific
catalytic
systems,
essentially vinyl**

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**and ring-
opening
polymerization,
both reaction
types allowing
the
manufacture of
distinct
products with
wide
applicability in
modern
technologies.**

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**The
comprehensive
data available
on this subject
are logically
and
systematically
selected and
reviewed
throughout 18
chapters,
according to
the basic**

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**catalytic
processes
involved, types
of monomers
and catalysts
employed,
reaction**

**conditions and
application
fields. The
modern trends
in design of
chiral**

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**metallocene
catalysts, well-
defined living
metathesis**

catalysts,

catalysts

tolerant toward

functionalities

and water

systems are

highlighted.

The book

discusses in

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**detail the
relevant aspects
of these**

processes

including

**reaction thermo
dynamics,**

kinetics,

mechanisms

and

stereochemistry

and correlates

the structure of

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produced
polymers with
their chemical

and physical-
mechanical

properties.

Related

important

topics include

Ziegler-Natta

polymerization

of olefins and

dienes, atom

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**transfer radical
polymerization
of vinyl
compounds,**

**metathesis of
olefins and**

**acetylenes,
acyclic diene**

**metathesis
reaction,**

**carbonyl
olefination**

reaction,

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**metathesis
polymerization
of acetylenes,
metathesis**

**degradation of
polymers and
ring-opening
polymerization
of heterocycles.**

**Special
emphasis is laid
upon the
manufacture of**

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commerical
products, new
polymers and
copolymers of

potential

interest for

industry and

design and

synthesis of

speciality

polymers with

particular

structures and

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**architectures
and desired
properties. The
book critically**

**evaluates the
most recent
achievements
reported in this
field and**

**outlines the
modern trends
on the research
and application**

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Studies In Surface
Science And
Catalysis
**of the catalytic
processes for
cycloolefin
polymerization.**

**For the first
time,
comprehensive
information
about the
published data
on the subject
up to now is
provided for**

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**both academic
and industrial
researchers
working in the
areas of
polymer
chemistry,
organic and
organometallic
chemistry,
surface science
and catalysis,
petrochemistry**

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**and chemical
engineering.**

**This
stimulating
book offers an
enlightening
introduction
and a quick
documentation
on the subject
as well as a
solid
background in**

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this field.

Moreover, the
work offers a
wealth of useful
information for
specialists
applying
polymers in
various
scientific and
industrial
areas.

The

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**proceedings of
ZEOCAT 90**

reflect the wide-

ranging aspects

of the rapidly

expanding field

of zeolite

science and

technology. The

invited plenary

lectures given

by eminent

zeolite

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scientists
summarize
current

knowledge and
address topical
areas of zeolite
research,
including a
contribution on
the use of
zeolites as
membranes.

The field of

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**investigations
described in the
submitted**

**articles in this
volume covers a
wide area of
problems
ranging from
the influence of
the synthesis
process on the
properties to
questions of**

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**acidity,
adsorption,
diffusion, and
catalysis. Of
special interest
are the newly
developed
applications of
zeolites in the
synthesis of
fine chemicals,
the use of
zeolites for**

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**sensors and
solid**

**electrolytes,
and the**

**sophisticated
zeolite-based
separation
processes.**

**The organizers
of this Sixth
Symposium
maintained
their initial**

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**objectives,
namely to
gather experts
from both**

**industries and
universities to
discuss the
scientific
problems
involved in the
preparation of
heterogeneous
catalysts, and**

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Catalysis
**to encourage as
much as
possible the
presentation of
research work
on catalysts of
real industrial
significance.**

**Another
highlight of
these symposia
is to reserve a
substantial part**

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of the program

to new

developments

in catalyst

preparation,

new

preparation

methods and

new catalytic

systems. The

fact that

chemical

reactions which

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**were hardly
conceivable
some years ago
have become**

**possible today
through the
development of
appropriate
catalytic
systems proves
that catalysis is
in constant
progress. The**

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**papers in this
volume deal
with**

**preparation of
new catalysts
and supports,
catalyst
preparation via
sol-gel
methods,
supported
catalysts and
synthesis of**

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nanometer size
catalysts.

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"Reaction

Kinetics and
the

Development of
Catalytic

Processes" is
the

continuation of
the very

successful

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**International
Symposium
"Dynamics of
Surfaces and
Reaction**

**Kinetics in
Heterogeneous
Catalysis", held
in September
1997 in
Antwerp,
Belgium. These
proceedings**

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**contain a
unique series of
top level**

plenary lectures

mainly focused

on • the

dynamics of

catalytic

surfaces • the

interaction of

the reacting

molecules with

the solid

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catalyst • the

elementary

steps of

reaction

pathways and

molecular

kinetics.

Surface science

techniques,

molecular

modeling,

transient

kinetic studies,

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Catalysis

**sophisticated
and specific
reactors are
included to a
growing extent
in the kinetic
modeling and
the
development of
catalytic
processes. How
this is practiced
today and how**

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Catalysis

**it will evolve in
the coming
years, and what
benefit can be
expected for a
more
fundamentally
based approach
is the aim of
the symposium.
Fluid Catalytic
Cracking VII:
Applications in**

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**Industry
Dynamics of
Surfaces and
Reaction**

**Kinetics in
Heterogeneous
Catalysis**

**Catalysts in
Petroleum**

Refining, 1989

**Hydrotreatment
and**

Hydrocracking

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of Oil Fractions
Studies In Surface
Reaction Kinetics
Science And
Catalysis

*Development and
Operation of
Catalytic
Processes is a
trendsetter. The
Keynote Lectures
have been
authored by top
scientists and*

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*cover a broad
range of topics like
fundamental
aspects of surface*

chemistry, in

particular

dynamics and

spillover, the

modeling of

reaction

mechanisms, with

special focus on

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Studies In Surface
Science And
Catalysis

*the importance of
transient
experimentation
and the application
of kinetics in
reactor design.*

*Fundamental and
applied kinetic
studies are well
represented. More
than half of these
deal with transient*

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kinetics, a new
trend made
possible by recent
sophisticated

experimental
equipment and the
awareness that
transient
experimentation
provides more
information and
insight into the

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*microphenomena
occurring on the
catalyst surface
than steady state*

*techniques. The
trend is not limited
to purely kinetic
studies since the
great majority of
the papers dealing
with reactors also
focus on transients*

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Refining 1989

*and even
deliberate
transient
operation. It is to
be expected that
this trend will
continue and
amplify as the
community
becomes more
aware of the
predictive potential*

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*of fundamental
kinetics when
combined with
detailed realistic
modeling of the
reactor operation.*

*This book
concentrates on
industrially
relevant reactions
which are
catalyzed by*

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*heterogeneous
and homogeneous
catalysts.*

*Homogeneous
catalysis by metal
complexes is
treated jointly with
heterogeneous
catalysis using
metallic and non-
metallic solids. In
both areas the*

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Catalysis

*high degree of
sophistication of
spectroscopic
techniques and
theoretical
modelling has led
to an enormous
increase in our
understanding at
the molecular
level. This holds
for the kinetics of*

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*the reactions and
the reactivities of
the catalysts, as
well as for the*

*syntheses of the
catalytic materials.*

*The development
of catalysis*

*science since the
first edition of this
book has*

necessitated a

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*thorough revision,
including special
chapters on
biocatalysis,
catalyst
characterization
and adsorption
methods. The
multidisciplinary
nature of catalysis
is reflected in the
choice of a novel*

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*Refining 1989
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*combination of
basic disciplines
which will be
refreshing and
inspiring to
readers.*

*Catalyst
Deactivation 1994
was an expansion
of earlier, highly
successful
symposia. The*

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*objective of the
symposium was to
promote a*

*scientific approach
of the*

*phenomenon of
catalyst*

*deactivation which
will contribute to
the development
of catalysts which
are less subject to*

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*structural
transformations
and more resistant
to poisons and
coke formation.*

*These aspects are
dealt with in 12
plenary lectures,
48 oral
presentations and
35 poster papers,
which were*

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*Refining 1989
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Catalysis*
*critically selected
from an impressive
response from
some 30 countries.*

*Both fundamental
and applied
aspects were
covered. The
deactivation of
catalysts in
important industrial
processes like fluid*

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bed catalytic

cracking

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hydrotreatment, hy

drosulfurization,

catalytic reforming,

hydrodenitrogenati

on, steam

reforming, hydrode

metallization,

hydrocracking,

Fischer-Tropsch

synthesis, propane

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*Refining 1989
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Catalysis*
*dehydrogenation,
phthalic anhydride
synthesis received
considerable
attention.*

*Mechanisms of
poisoning,
sintering and
coking were further
investigated and
modelled and new
experimental*

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*Refining 1989
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*techniques for the
characterization
and the
quantification of
deactivation were
also introduced.*

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1989Elsevier
Fundamentals and
Modeling
Catalyst*

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Deactivation 2001

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Chemical Reactor

Science And

Technology for

Catalysis

Environmentally

Safe Reactors and

Products

Ionic, Ziegler-Natta

and ring-opening

metathesis

polymerization

Catalytic

Polymerization of

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Cycloolefins

Biocatalysis in Oil

Science And

Catalysis

Refining focuses
on petroleum
refining

bioprocesses,

establishing a

connection

between science

and technology.

The micro

organisms and

biomolecules

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examined for
biocatalytic
Science And
Catalysis
purposes for oil
refining processes
are thoroughly
detailed.

Terminology used
by biologists,
chemists and
engineers is
brought into a
common language,
aiding the

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understanding of
complex biological
-chemical-
engineering

issues. Problems
to be addressed by
the future R&D
activities and by
new technologies
are described and
summarized in the
last chapter. *

Updated

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references *

Studying In Surface
Science And

bioprocessing
problems, looking

at opportunities
for improvements

and technology
developments

This book is one of
a kind in the field
of petroleum

biorefining and

biological upgrade

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of petroleum; it presents a critical review as well as an integrated overview of the potential biochemical processes, bridging the gap between academia and industry. It addresses today's demanding

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production

challenges, taking
into account

energy efficient

and

environmentally

friendly processes,

and also looks at

the future

possibility of

implementing new

refinery systems.

Suitable for those

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practitioners the
Studies In Surface
petroleum
Science And
industry, students
Catalysis
and researchers

interested in
petroleum
biotechnology. *

Covers a new
application field
for biotechnology *

Looks at
innovative
processes for the

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petroleum industry

* Presents

examples of

modern

environmental

processes

The symposium on

Hydrotreatment

and Hydrocracking

of Oil Fractions

aims to provide a

global perspective

and an inspection

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Science And
Catalysis

of the state-of-the-art of these processes. New American, European and Japanese environmental regulations call for advanced hydrotreatment processes for HDS and HDN for the removal of S- and

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Ni-components
from oil fractions.

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Science And
Catalysis

These will alter the
product slate of
the oil refineries
and the
hydrocarbon
composition of
these products.

Hydrocracking will
play an important
part in this shift.

Adapting the

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operating
conditions will not
suffice to reach

the desired

product

specifications and
yields. Adequate
catalysts will have
to be developed.

Powerful tools are
now available for
this, e.g. surface
science

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techniques,
molecular
Science And
Catalysis
modeling and new
types of reactors

operated in a
nonsteady mode.

Another

instrument in the
improvement of
hydrotreatment
and hydrocracking
units is the

availability of more

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Studies In Surface
Science And
Catalysis

realistic kinetic
models. These are
based on a

judicious insight
into the reaction
mechanism, also
provided by the
above-mentioned
tools. Progress in
the analytical
techniques has
allowed the
reduction of the

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lumping of
components in
these kinetic
models and first
order kinetic
equations are
gradually replaced
by equations
accounting for the
adsorption of the
various
components. More
detailed and more

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Studies In Surface
Science And
Catalysis

realistic reactor
models are now
based on rigorous
hydrodynamic

models and their
application has
become possible
through the rapidly
increasing
possibilities of
computers.

The overall theme
of the 3rd World

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Congress is "Atom
Efficient Catalytic
Science And
Global
Catalysis

Technologies".

This theme was
chosen to
stimulate the
participants to
report their
findings with an
emphasis on
conserving

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Catalysis

valuable material
in their catalytic
transformations,
as well as

conserving
energy, in an
environmentally
responsible
manner. Progress
towards this stated
goal is substantial
as evidenced by
the tremendous

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Catalysis

response of the
community in their
participation of
quality

publications
compiled in these
Proceedings of the
Congress. The
subjects presented
span a wide range
of oxidation
reactions and
catalysts. These

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include the
currently
important area of
lower alkane
oxidation to the
corresponding
olefins,
unsaturated
aldehydes, acids
and nitriles. The
four featured
lectures and seven
plenary lectures

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Refining 1989
Studies In Surface
Science And
Catalysis

constitute the
general
background and
overview of the
subject matter at
hand. The 104
contributed papers
and 13 poster
manuscripts,
summarized in this
compendium,
probe new
avenues to

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Refining 1989

achieve
catalytically
efficient oxidation
reactions for the
future needs of
mankind in a
global
environment.

Heterogeneous
Catalysis and Fine
Chemicals II
Reaction Kinetics
and the

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Refining 1989
Development and
Operation of
Catalytic
Processes

Developments and
Perspectives

Preparation of
Catalysts V

Petroleum

Biotechnology

**Catalysis plays
an increasingly**

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critical role in

modern

petroleum

refining and

basic

petrochemical

industries as

market demands

for and

specifications of

petroleum and

petrochemical

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products are
continuously
changing. As we
enter the 21st

century, new
challenges for
catalysis science
and technology
are anticipated in
almost every
field. Particularly,
better utilization

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In Petroleum
Refining 1989
of petroleum
resources and
demands for
cleaner
transportation
fuels are major
items. It was
against this
background that
the 2nd
International
Conference on

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**Catalysts in
Petroleum
Refining and
Petrochemical**

**Industries was
organized. The
conference was
attended by
around 300
specialists in the
catalysis field
from both**

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Refining 1989
Studies In Surface
Science And
Catalysis

**academia and
industry from
over 30
countries. It
provided a forum
for the exchange
of ideas between
scientists and
engineers from
the region with
their
counterparts**

from industrialized countries. The papers from the conference, which were carefully selected from around 100 submissions, were refereed in terms of

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Refining 1989
Scientific and
technical content
and format in
accordance with

internationally
accepted
standards. They
comprise a mix
of reviews
providing an
overview of
selected areas,

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original
fundamental
research results,
and industrial
experiences.

Many processes
of the chemical
industry are
based upon
heterogeneous
catalysis. Two
important items

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Refining 1989

of these
processes are
the development
of the catalyst
itself and the
design and
optimization of
the reactor. Both
aspects would
benefit from
rigorous and
accurate kinetic

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Refining 1989
Studies In Surface
Science And
Catalysis

**modeling, based
upon information
on the working
catalyst gained
from classical
steady state
experimentation,
but also from
studies using
surface science
techniques, from
quantum**

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chemical
calculations
providing more
insight into
possible reaction
pathways and
from transient
experimentation
dealing with
reactions and
reactors. This
information is

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**seldom
combined into a
kinetic model
and into a
quantitative
description of the
process.**

**Generally the
catalytic aspects
are dealt with by
chemists and by
physicists, while**

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Refining 1989

the chemical
engineers are
called upon for
mechanical

aspects of the
reactor design
and its control.

The symposium
"Dynamics of
Surfaces and
Reaction Kinetics
in

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Refining 1989
Studies In Surface
Science And
Catalysis

**Heterogeneous
Catalysis" aims
at illustrating a
more global and
concerted
approach
through a
number of
prestigious
keynote lectures
and severely
screened oral**

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and poster
presentations.

Studies In Surface
Science And
Catalysis

**Chemical reactor
engineering, as a
discipline, has a
central role to
play in helping
with the
development of
adequate
strategies and
technologies that**

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can deal
effectively with
the concerns of
today's society,
which are

increasingly
becoming
attuned to the
environment. The
current challenge
is how to adapt
present

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Processes and
Products to meet
more rigorous
environmental
standards.

Chemical
Reactor

Technology for
Environmentally
Safe Reactors
and Products
addresses these

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issues in three
parts: I -- Fuels of
the Future and
Changing Fuel
Needs; II --

Alternative
Sources; III --
Emission

Control,
Chemical
Reactor Safety
and Engineering.

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Refining 1989
Studies In Surface
Science And
Catalysis

**Attention is also
paid, throughout
the text, to the
fundamental
technological
aspects of
reactor
engineering and
to possible
strategies for
bridging
knowledge gaps.**

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Refining 1989

**This volume
contains papers
and short
communications**

**presented at the
12th Canadian
Symposium on
Catalysis. The
aim of the
meeting was to
present an
update on new**

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Refining 1989
Studies In Surface
Science And
Catalysis
**and established
areas of catalysis
research being
performed in
industry,
government and
university
laboratories.**

**Topics covered
relate mainly to
resource
processing, such**

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**Refining 1989
Studies In Surface
Science And
Catalysis**
**as heavy oil and
natural gas
upgrading, and to
environmental
issues.**

**Approximately
half the papers
are included in
sections on
hydrogenation,
carbon-carbon
bond formation**

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and
environmental
issues. The
Catalysis

remaining papers
cover general
topics and
homogeneous
reactions.

Examples
include studies
of
hydroprocessing

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Refining 1989
Studies In Surface
Science And
Catalysis
**catalysts, carbon-
carbon bond
formation via
methane**

**oxidative
coupling and
dimerization of
olefins,
homogeneous
catalysts in
polymerization
and dimerization**

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reactions,
performance of
pillared clays,
metal-oxygen
cluster
compounds,
zeolites and
catalysts
prepared by
metal oxide
vapour
synthesis.**

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Studies In Surface
Science And
Catalysis

**Studies that
address the
environmental
issues include
wet-air oxidation,
catalytic
elimination of
organics,
oxidation
reactions and
catalyst
regeneration.**

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Studies In Surface
Science And
Catalysis

The book provides practitioners of catalysis with an update on a wide number of topics and will be particularly useful to those interested in an overview of current catalysis

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research

activities.

Specialists in the
areas of

hydrogenation,

carbon-carbon

bond formation,

homogeneous

catalysis and

environmental

issues will also

find a valuable

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Refining 1989
Studies In Surface
Science And
Catalysis
**set of new data
and interesting
discussions on
these topics.**

**Past and Present
in DeNOx
Catalysis: From
Molecular
Modelling to
Chemical
Engineering
Catalyst**

Page 144/286

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Deactivation

Studies In Surface
Science And

Catalysis

**New Frontiers in
Catalysis, Parts A-
C**

**Fischer-Tropsch
Synthesis,
Catalysts and
Catalysis**

These

proceedings

Page 145/286

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Studies In Surface
Science And
Catalysis

reflect the
important role
of catalysis
in petroleum
refining and
the effects of
factors such
as
environmental
legislation on
the industry.
They also show

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Studies In Surface
Science And
Catalysis

the emergence
of significant
scientific
expertise in
the Middle
East - the
cradle of the
oil industry.
Participants
from all over
the world took
part in the

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meeting and
the book
Studies In Surface
Science And
Catalysis
contains a
well-balanced
selection of
articles from
both academia
and industry.
Current trends
in the oil
industry
focused

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Refining 1989

attention
mainly on
heavy end
hydrotreating,
but other
processes also
gained their
share of
attention. An
invaluable
feature of the
meeting was

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the two panel
discussions
where
participants

took the
opportunity to
obtain advance
on many real
and immediate
problems.

Written by a
scientist with

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Studies In Surface
Science And
Catalysis

more than 25
years of
experience in
the field,
this serves as
a complete
guide to
catalyst
activity loss
during the hyd
roprocessing
of heavy oils.

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Deactivation
of Heavy Oil H
ydroprocessing
Catalysts

offers a
rigorous
exploration of
a wide range
of topics in
the field,
including the
physical and

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chemical
properties of
heavy oils and
hydroprocessin
Catalysis

g catalysts;
the mechanisms
of catalyst
deactivation;
catalyst chara
cterization by
a variety of
techniques and

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reaction
conditions;
and laboratory
and commercial

information

for model

validations.

The content

demonstrates

how to develop

correlations

and models for

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Studies In Surface
Science And
Catalysis

a variety of
reaction
scales with
step-by-step
descriptions
and detailed
experimental
data. It also
contains
important
implications
for increasing

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operational
efficiencies
within the
petroleum

industry. With
in-depth
explanations
of models and
mechanisms not
found in other
literature,
Deactivation

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Studies In Surface
Science And
Catalysis

of Heavy Oil H
ydroprocessing
Catalysts is
an essential
reference that
industry
researchers
and
engineering
students will
turn to again
and again.

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**Serves as a
complete guide
to catalyst
activity loss**

**during the hyd
roprocessing
of heavy oils,
written by a
scientist with
more than 25
years of
experience in**

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the field

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Science And
Catalysis

Explores the
physical and
chemical

properties of
heavy oils and
hydroprocessin
g catalysts;
the mechanisms
of catalyst
deactivation;
catalyst chara

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Characterization by
Studies In Surface
Science And
Catalysis
a variety of
techniques and
reaction

conditions;
laboratory and
commercial
information
for model
validations;
and more
Demonstrates

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Studies In Surface
Science And
Catalysis

how to develop
correlations
and models for
a variety of
reaction
scales with
step-by-step
descriptions
and detailed
experimental
data Contains
important

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implications
for increasing
operational
efficiencies

within the
petroleum
industry

Offers an
essential
reference for
professionals
and

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researchers

Studies In Surface
working in the
Science And

Catalysis

industry, as

well as

students

taking courses

on chemical

reaction

engineering

Catalyst

Deactivation

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Studies In Surface
Science And
Catalysis

1991 was an
expanded
version of
earlier,
highly
successful
symposia. The
symposium
featured
invited and
solicited
papers

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including 4

plenary

lectures, 78

oral

presentations

and 23 poster

papers. Most

of the papers

are contained

in this

volume. The

eight main

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topics

emphasised at

this most

recent

symposium

were:

deactivation m

echanisms/phen

omena (carbon

deposition,

poisoning, and

sintering),

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methods

(modeling and
Studies In Surface
Science And
Catalysis
techniques),

and important

catalysts (hyd

rotreating,

oxides, and

zeolites). All

of these areas

were well

represented as

attested by

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Refining 1989
the
substantial
number of
papers

contained in
these
proceedings.
Four review
papers based
on the plenary
lectures
provide state-

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Refining 1989
of-the-art
Studies In Surface
perspectives
Science And
on new thrusts
Catalysis
in

deactivation
research and
development.

Since 1987,
the Petroleum
Division of
the American
Chemical

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Society (ACS)
Studies In Surface
has sponsored
Science And
at 3 year
Catalysis

intervals an
international
symposium on
fluid cracking
catalysts
(FCC)

technology.

This volume
collects the

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recent

progress of

this

technology as

reported in

the papers

presented

during the

232th National

Meeting of the

ACS in San

Francisco,

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September

10-14, 2006.

Sixty-six

years after

the

introduction

of the fluid

cracking

catalyst

process, it

remains the

main process

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Refining 1989
Studies In Surface
Science And
Catalysis

of gasoline
generation for
the estimated
237 millions
cars on US
roads.

Catalysts
testing and
evaluation
still remains
a subject of
interest,

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Refining 1989
debate and
controversy.
Studies In Surface
Science And
Catalysis

Lambda sweep
testing,

testing of

SO_x, NO_x and

combustion

promoters have

been discussed

in details

together with

catalyst

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Refining 1989
evaluation for
Studies In Surface
atmospheric
Science And
residues and
Catalysis
metal

contaminated
oils cracking.
Of particular
interest has
been the
introduction
of novel
concept in

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process design

aimed at

improving

cracked

product

selectivity

such as two-

stage risers

for better

gasoline and

olefins

production and

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downer

technology for
high severity
processes .

The importance
of solid state
nuclear
magnetic
resonance

(NMR) in the
study of crude
oils,

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Refining 1989
catalysts and
Studies In Surface
reaction
Science And
products are
Catalysis
illustrated by
several
examples. Two
contributions
describe the
use of
predictive
methods to
understand FCC

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Refining 1989
aging and
deactivation
and personal
overviews of
the
development of
SO_x and
combustion
promoters
technology are
presented. *

Presents

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Refining 1989
Studies in Surface
Science And
Catalysis
findings from
the tri-annual
international
symposium on
fluid cracking
catalysts
(FCC)

technology,
sponsored by
the Petroleum
Division of
the American

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Chemical
Society (ACS)

Science And
Catalysis

* Two
contributions
describe the
use of
predictive
methods to
understand FCC
aging and
deactivation *

Personal

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overviews by
the authors of
the
development of

SO_x and

combustion

promoters

technology

technology

An Integrated

Approach to

Homogeneous,

Heterogeneous

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In Petroleum
Refining 1989
and Industrial
Studies In Surface
Catalysis
Science And
Catalysis
Automotive
Pollution
Control III
Heterogeneous
Catalysis and
Fine Chemicals
IV
Catalysis and
Adsorption by

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In Petroleum

Refining 1989

**Zeolites
Structure-
Activity and
Selectivity
Relationships**

in

**Heterogeneous
Catalysis**

*This proceedings
contains the
papers*

presented at the

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In Petroleum

Refining 1989
Studies In Surface
Science And
Catalysis

*9th International
Symposium on
Catalyst*

*Deactivation,
held in*

*Lexington, KY,
USA, on 7-10
October 2001.*

*After three
meetings in
Poitiers, France,
the 4th*

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Refining 1989
International
Symposium on
Studies In Surface
Science And
Catalysis

*Catalysis and
Fine Chemicals
was held under
the auspices of
the New Swiss
Chemical
Society in Basel,
Switzerland.
Fundamental as*

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Refining 1989
Studies In Surface
Science And
Catalysis

well as applied contributions on the use of heterogeneous catalysis for the preparation of fine chemicals were presented and discussed. The program consisted of 4 plenary lectures,

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*28 oral
contributions
and around 90
posters covering
a broad range of
reactions and
catalytic
aspects. 82 of
these
contributions
are collected in
the present*

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Refining 1989
proceedings,
Studies In Surface
grouped into the
Science And
following 8
Catalysis

topical areas: -

*Industrial and
engineering*

problems (7

contributions) -

*Alkylation and
acylation*

reactions (11

contributions) -

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Refining 1989
Studies In Surface
Science And
Catalysis

*Enantio- and dia
stereoselective
hydrogenation
reactions (9
contributions) -
Chemoselective
hydrogenation
reactions (12
contributions) -
Oxidation
reactions (14
contributions) -*

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*Refining 1989
Studies In Surface
Science And
Catalysis*
*Immobilized and
encapsulated
complex
catalysts (12
contributions) -
Zeolite and clay
catalysts (12
contributions) -
Miscellaneous
topics (5
contributions)*

Heterogeneous

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*Refining 1989
Studies In Surface
Science And
Catalysis*

*catalysis plays a
major role in the
organic
synthesis of
specialty and
fine chemicals.
However, as the
interaction
between surface
sites and
functional
groups is*

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*Refining 1989
Studies In Surface
Science And
Catalysis*

*complex, more
investigations
are necessary
into the effects
of catalysts on
the reaction
mechanisms.*

*The Third
International
Symposium on
Heterogeneous
Catalysis and*

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Refining 1989
Fine Chemicals
Studies In Surface
Science And
Catalysis

*provided an
opportunity for
discussions on
the basic and
practical aspects
of this subject
between
researchers,
manufacturers
and users of
solid catalysts*

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**Refining 1989
Studies In Surface
Science And
Catalysis**

*for synthesis of
fine chemicals.
The present
volume
comprises the
invited plenary
lectures and
research papers
classified under
the three main
headings,
hydrogenation,*

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*Refining 1989
Studies In Surface
Science And
Catalysis*
oxidation and
acid-catalysis.

*All papers were
refereed. A large
variety of
reactions are
described, the
emphasis being
on selectivity,
taking into
account all
aspects:*

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Refining 1989
Studies In Surface
Science And
Catalysis

*chemo-, regio-,
and
stereoselectivity
(including enanti
oselectivity) and
on the change of
these
selectivities as a
function of the
characteristics
of the catalysts
and operating*

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Refining 1989

conditions.

Studies In Surface
Science And
Catalysis

*This book offers
an overview of
the state of the
art in the field of
DeNOx catalysis
in order to focus
novel*

*orientations,
new*

*technological
developments,*

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*Refining 1989
Studies In Surface
Science And
Catalysis*

*from laboratory
to industrial
scale. A
particular
attention has
been paid
towards the
implementation
of catalytic
processes for
minimising NO_x
emissions either*

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*Refining 1989
Studies In Surface
Science And
Catalysis*

*from stationary
or mobile
sources under
lean condition to
meet future
standard
regulations of
NOx emissions.
In the first part
of this book,
critical aspects
reported in the*

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*Refining 1989
Studies In Surface
Science And
Catalysis*

*literature which
usually make
difficult the
achievement of
efficient
catalytic
technologies in
those conditions
are summarised
and analysed in
order two
separate new*

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perspectives.

*The second part
deals with*

fundamental

aspects at

molecular level.

A better

understanding

of the reactions

involved under

unsteady-state

conditions is

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probably a pre-requisite step for improving the

performances of the actual processes or developing original ones.

The development of powerful in situ

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Studies In Surface
Science And
Catalysis
*spectroscopic
techniques is of
fundamental
interest for*

*kinetic
modelling.*

*Correlations
between
spectroscopic
and kinetic data
with those
obtained from*

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*theoretical
calculations are
reported. Some
illustrations*

*emphasise the
fact that these
comparisons
may help in
determining the
nature of the
catalytic active
sites and*

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*building
predictive tools
for simulations
under running
conditions. The
latter part of this
book will be
illustrated by
different
practical
approaches
covering various*

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Studies In Surface
Science And
Catalysis

*aspects related
to the catalysts
preparation and
the*

*development of
alternative
technologies
which include
industrial
considerations. -
New
technological*

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Science And
Catalysis

*developments
for investigating
catalytic
reactions in
transient
conditions (in
situ and
operando
spectroscopic
techniques) -
Concerted
approaches in*

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Studies In Surface
Science And
Catalysis

*DeNOx catalysis
- How academic
aspects (kinetic,
in situ*

*spectroscopic
measurements)
can provide
useful
information for
practical
applications -
Comparison of*

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*different
approaches
provided by
academic and
industrial
partners*

*Biocatalysis in
Oil Refining*

*Deactivation of
Heavy Oil*

*Hydroprocessing
Catalysts*

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*Future
Opportunities in
Catalytic and
Separation
Technology
Catalyst
Deactivation
1997
Preparation of
Catalysts VI
The proceedings of
the VIIth*

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***International
Symposium on the
Scientific Bases for
the Preparation of
Heterogeneous
Catalysts, are in line
with the general
scope of this series
of events. Emphasis
in all Symposia has
been on the
scientific aspects of
the preparation of
new and industrial***

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*Refining 1989
Studies In Surface
Science And
Catalysis*

***catalysts, or on new
methods of
preparation, rather
than on the catalytic
reactions in which
such solids are
ultimately used. In
the present context,
the catalytic event
itself has only been
considered as
another, though
often decisive,
method of catalyst***

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characterization.

Catalyst

Deactivation 1997

focused on 9 key

topical areas:

carbon deposition

and coke formation,

chemicals,

environmental

catalysis, modeling,

petroleum

processing,

poisoning, syngas

conversion,

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*Refining 1989
techniques, and
thermal degradation.*

*Studies In Surface
Science And
Catalysis*
**All of these areas
were well**

***represented at the
meeting; moreover,
several review
articles were
presented that
provide
perspectives on new
research and
development
thrusts. The***

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Studies In Surface
Science And
Catalysis*

**proceedings of the
meeting are
organized with six
review and award
articles at the front
of the volume
followed by topical
articles a keynote,
5-6 oral, and 2-3
poster papers. A list
of authors is
provided at the end
of the book. It
should be**

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*Refining 1989
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Catalysis*

**emphasized that all
of the papers were
ranked and reviewed
by members of the
Scientific
Committee.**

**These volumes
comprise the
proceedings of the
major international
meeting on catalysis
which is held at 4
year intervals. The
programme**

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*Refining 1989
Studies In Surface
Catalysis*

***focussed on New
Frontiers in
Catalysis including
nontraditional
catalytic materials
and environmental
catalysis. The
contributions cover
a wide range of
fundamental,
applied, industrial
and engineering
aspects of catalysis.
The extensive range***

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*Refining 1989
Studies In Surface*
**of highly efficient
industrial**

*Science And
Catalysis*
**techniques for
observing and
characterizing
catalytically
important surfaces
is evident. The**

**programme covered
the following
sessions:**

**Mechanism, theory,
in situ methods;
Catalytic reaction on**

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atomically clean
Surfaces In Surface
reaction on zeolites
Science And
Catalysis
and related
substances; New
methods and
principles for
catalyst preparation;
Hydrotreatment
reactions (HDS,
HDN);
Characterization of
catalysts,
application of novel*

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techniques;

Selective oxidation;

New catalytic

aspects of

heteropoly acids

and related

compounds;

Reaction of

hydrocarbons;

Nontraditional

catalytic materials;

Fuel upgrading;

Alkane activation;

Acid-base catalysis;

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**New selective
catalytic reactions,
fine chemicals;**

**Environmental
catalysis; Industrial
catalysis,**

**deactivation,
reactivation;**

**Synthesis from
syngas;**

**Electrocatalysis;
Photocatalysis. The
invited lectures and
433 papers included**

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*Refining 1989
Studies In Surface
Science And
Catalysis*
**in these volumes
present an update
on all areas of
catalysis and
applications.**

***These proceedings
are based on the
third of a series of
symposia devoted
to the use of
catalysis for the
depollution of
exhaust gases of
motor vehicles.***

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Although catalysts have been used for this purpose for some thirty years, the subject is still very topical because of its economic impact. The increasing number of submitted, accepted and published papers amply attests to this fact.

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Refining 1989
Proceedings of the
9th International
Symposium,
Lexington, KY, USA,
October 2001

Reaction Kinetics
and the
Development of
Catalytic Processes
Scientific Bases for
the Preparation of
Heterogeneous
Catalysts
Third World

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**Congress on
Studies In Surface
Catalyst And**

Deactivation 1994

This volume
constitutes the
proceedings of
the second
symposium on
Catalysis and
Automotive
Pollution
Control. CAPoC

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Studies In Surface
Science And
Catalysis

2 was a great
success from
the point of
view of its
scientific
interest, as
evidenced by
the content of
this book, and
also from the
high
participation,
some 260

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scientists.

About two-
thirds of the
contributors
came from the
industrial
world, mainly
the car and oil
industries and
catalyst
manufacturers.
This is ample
proof that

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exhaust

studies in surface
catalysis

Science And
Catalysis
remains a major
topic of

interest. The

first part of

the book is a

general

introduction to

the problem of

automotive

pollution. The

second,

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strictly
catalytic, part
is devoted to

fundamental and
applied studies
on pollution
control, with
emphasis on
exhaust
catalytic
converters.

The recession
in the

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traditional
heavy
Studies In Surface
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industries

along with the
development of
advanced
technologies in
all the
industrial
countries has
meant that the
impact of
heterogeneous

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Catalysis

catalysis in
the synthesis
of fine

chemicals is
becoming
increasingly
noticeable. The
second

International
Symposium on
Heterogeneous
Catalysis and
Fine Chemicals

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Catalysis
is to be seen
in this
perspective.

Organised by
the Laboratory
of Catalysis in
Organic
Chemistry of
the University
of Poitiers
within the
framework of
the

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International
Symposia of the
Science And
Centre

National de la
Recherche
Scientifique'
(CNRS), the
symposium
provided an
opportunity for
contact between
academic
researchers and

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Catalysis

manufacturers,
users (or
potential
users) of solid
catalysts for
fine chemical
synthesis. The
book gives an
overall view of
the problems
encountered by
academic and
industrial

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Catalysis

researchers. A
large variety
of reactions
are described,

the emphasis
being on
selectivity:
chemo-, regio-,
stereoselectivi-
ty (even enanti-
oselectivity)
and on the
change of these

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Catalysis

selectivities
as a function
of the
characteristics
of the surface
sites (nature,
distribution,
etc.). The
three themes of
the symposium,
hydrogenation,
oxidation and
acid-base

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Studies In Surface
Science And
Catalysis

catalysis were
introduced in
four plenary
lectures and

two invited
communications,
maintaining a
balance between
the industrial
and the
academic points
of view. Some
60 research

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papers selected
by the
Scientific

Committee were
presented. All
are reproduced
in full in this
proceedings
volume.

Recent
development of
olefin
polymerization

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Catalysis

catalysts has
caused marked
changes in both
industrial and
academic
research.

Industrial use
of homogeneous
metallocene
catalysts has
already begun
in the fields
of high density

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polyethylene
and
syndiotactic
polypropylene.

Moreover,
important data
have been
obtained from
academic
investigations
which have
proved useful
for

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understanding
conventional
heterogeneous
Ziegler-Natta
catalysts. From
the industrial
viewpoint,
however,
heterogeneous
high-yield
catalysts seem
to be more
important. The

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present volume
Studies In Surface
Science And
Catalysis
invited
lectures and
contributed
papers. The
following
topics are
covered: (1)
Heterogeneous
Catalysts, (2)
Metallocene
Catalysts and

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Science And
Catalysis
(3) New Trends
in the
Polyolefin
Industry.

Catalysis is a
multidisciplina
ry activity
which is
reflected in
this book. The
editors have
chosen a novel
combination of

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basic
disciplines -
Science And
Catalysis
homogeneous
catalysis by
metal complexes
is treated
jointly with
heterogeneous
catalysis with
metallic and
non-metallic
solids. The
main theme of

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Catalysis

the book is the
molecular
approach to
industrial
catalysis. In
the
introductory
section Chapter
1 presents a
brief survey of
the history of
industrial
heterogeneous

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and homogeneous
catalysis.

Subsequently, a
selection of
current
industrial
catalytic
processes is
described
(Chapter 2). A
broad spectrum
of important
catalytic

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Applications is
presented,
including the
basic

chemistry, some
engineering
aspects,
feedstock
sources and
product
utilisation. In
Chapter 3,
kinetic

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Catalysis

principles are
treated. The
section on

fundamental
catalysis

begins with a
description of
the bonding in
complexes and
to surfaces
(Chapter 4).

The elementary
steps on

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Catalysis

complexes and
surfaces are
described. The
chapter on

heterogeneous
catalysis (5)
deals with the
mechanistic
aspects of
three groups of
important
reactions: syn-
gas conversion,

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hydrogenation,
Studies In Surface
and oxidation.

Science And
Catalysis
The main
principles of
metal and metal
oxide catalysis
are presented.
Likewise, the
chapter on
homogeneous
catalysis (6)
concentrates on
three reactions

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representing
examples from
Science And
Catalysis

three areas:
carbonylation,
polymerization,
and asymmetric
catalysis.

Identification
by in situ
techniques has
been included.

Many
constraints to

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Science And
Catalysis

the industrial
use of a
catalyst have a
macroscopic

origin. In
applied
catalysis it is
shown how
catalytic
reaction
engineering
deals with such
macroscopic

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considerations
in
heterogeneous
as well as

homogeneous
catalysis

(Chapter 7).

The transport
and kinetic
phenomena in
both model
reactors and
industrial

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reactors are
outlined. The
section on

catalyst
preparation
(Chapters 8 and
9) is concerned
with the
preparation of
catalyst
supports,
zeolites, and
supported

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Catalysis

catalysts, with
an emphasis on
general
principles and
mechanistic
aspects. For
the supported
catalysts the
relation
between the
preparative
method and the
surface

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chemistry of
Studies In Surface
the support is
Science And
highlighted.

Catalysis
The molecular
approach is
maintained
throughout. The
first chapter
(10) in the
section on
catalyst charac
terization
summarizes the

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most common spectroscopic techniques used for the characterisation of heterogeneous catalysts such as XPS, Auger, EXAFS, etc. Temperature programmed techniques, which have

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found
widespread
application in
heterogeneous
catalysis both
in catalyst cha
racterization
and simulation
of pretreatment
procedures, are
discussed in
Chapter 11. A
discussion of

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texture
measurement,
theory and
application,

concludes this
section (12).

The final
chapter (13)

gives an
outline of
current trends
in catalysis.

Two points of

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view are
adopted: the
first one
focusses on
developments in
process
engineering.
Most often
these have
their origin in
demands by
society for
better

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Catalysis

processes. The
second point of
view draws
attention to
the autonomous
developments in
catalysis,
which is
becoming one of
the frontier
sciences of
physics and
chemistry. In

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this book
emphasis is on
those reactions
catalyzed by

heterogeneous
and homogeneous
catalysts of
industrial
relevance. The
integrative
treatment of
the subject
matter involves

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many disciplines, consequently, the writing of the book has been a multi-author task. The editors have carefully planned and harmonized the contents of the chapters.

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Proceedings of
Studies In Surface
Science And
Catalysis
International
Symposium,

Brugge,
Belgium, April
19-21, 1999

Catalysts for
Upgrading Heavy
Petroleum Feeds
Preparation of
Catalysts VII
Catalysis

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Catalyst Design
Studies In Surface
Science And
Polyolefins

The declining supply of crude oils worldwide and the ever increasing demand for petroleum products from China, India, Europe and the

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US have recently propelled crude prices to unprecedented levels. The future availability of traditional crudes is becoming a source of discussion and debate. Fischer-Tropsch Synthesis,

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Catalysts and
Studies In Surface
Science And
Catalysis offers a

timely and
comprehensive
report on the
processing of
relatively
inexpensive coal
deposits into
transportation
fluids using Fisher-
Tropsch process

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Technology. In
Studies In Surface
Science And
Catalysis
addition to recent
catalysts and
process

developments, the
book contains the
history of the
Fisher-Tropsch in
Germany and
Japan based on
captured
documents by

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allied forces. *

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Increase the
understanding of
FT process

development *

Addresses four
major areas of
interest in Fischer-
Tropsch synthesis
(FTS)

The production of
useful materials

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and the removal of
polluting
substances are
fundamental to
chemical
technology, and in
this respect
catalytic and
separation
processes play
essential roles. In
order to cope with

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increasing

demands to find
solutions for the

shortage of natural

resources and

global

environmental

pollution, rapid and

significant

progress in the

technology is

required. This

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book results from
the successful
seminar on
Selective

Reactions and
Separation, held at
Oiso, Japan, in
February 1988.

The seminar was
organised by
ASPRONC (the
Association for the

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Progress of New
Chemistry) as the
fourth in a series
of seminars on
Frontier

Technology.

ASPRONC was
inaugurated in
1986 and its
membership
comprises major
companies in the

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chemical industry
and various other
sectors interested

in chemistry. The
aim of this seminar
was to explore the
frontiers of
catalytic and
separation
technology and to
discuss the
requirements for

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its future

development. The
many interesting
lectures and active

discussions which

resulted stimulated

the editors to

prepare this book.

Each lecturer has

written a chapter

which represents a

significantly

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revised and
extended version
of his original
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Catalysis

lecture. The book
will appeal to many
readers and will
undoubtedly help
to make a positive
contribution to the
future
development of
chemical

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technology.

This volume
contains invited
papers and
communications
presented at the
Third European
Workshop Meeting
on Selective
Oxidation by
Heterogeneous
Catalysis. The

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purpose of the meeting was to present recent results and to discuss new aspects of partial oxidation by heterogeneous catalysis. The following topics were discussed:
Novel processes

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for obtaining new
fine chemicals by
catalytic partial
oxidation; selective
oxidation and
oxidative
dehydrogenation
of alkanes; new
catalysts and
advances in
preparation
methods of

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oxidation catalysts;
Studies In Surface
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Catalysis
new phenomena in
partial oxidation
and new aspects

of surface

chemistry in oxide

catalysts; new

applications of

physicochemical

methods for

characterization of

oxide catalysts;

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oxidation with
other agents than
oxygen and
catalytic oxidation
of carbohydrates.

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This book will
provide a valuable
set of data on
reactions of
selective oxidation
which will be
extremely useful to

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catalyst and

related

practitioners,

whether

fundamentalists or

highly applied, and

to process

engineers who

wish to evaluate

current findings in

this field. The wide-

range approach to

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reactions of
selective oxidation

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Catalysis

will disseminate
knowledge in

specialized areas
of selective

oxidation and
encourage

innovation and
creativity.

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Petroleum Refining

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and Petrochemical
Studies In Surface
Industries 1995

Science And
Catalysis and
Catalysis
Automotive

Pollution Control II

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Petroleum Refining
1989

Catalysis: An

Integrated

Approach

Heterogeneous

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Catalysis and Fine
Studies In Surface
Chemicals III
Science And
Catalysis