



Subject index

Acid catalysts

Hydrogen production in the conversion of 2-methylbutane over a series of acid catalysts 235

Acid site concentration

The reversible skeletal isomerization between *n*-butenes and isobutene over solid acid catalysts 215

Acidity

Hydrocarbon synthesis through CO₂ hydrogenation over CuZnOZrO₂/zeolite hybrid catalysts 165

Activated carbon

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

Adsorption

Hydrogen sulphide emission control by combined adsorption and catalytic combustion 67

Aliphatic oxidation

Reductive activation of dioxygen: A new concept for the catalytic oxidation 183

3-alkoxypropanenitrile

Cyanoethylation of alcohols over solid base catalysts 277

Alkynes

New Si-C bond forming reactions over solid-base catalysts 271 Alkynylsilanes

New Si-C bond forming reactions over solid-base catalysts 271 Ammonia

Selective removal of H₂S from coke oven gas 73

Ammonium thiosulfate

Selective removal of H₂S from coke oven gas 73

Amorphous alloy

Chemical preparation and characterization of metal-metalloid ultrafine amorphous alloy particles 3

Attenuated total reflectance (ATR)/FTIR

Synthesis of MCM-41 using microwave heating with ethylene glycol 301

Au/SiO₂

Properties of adsorbed oxygen on Au/SiO₂ 205

Basic zeolite

O-alkylation of phenol derivatives over basic zeolites 253 enzylsilanes

New Si-C bond forming reactions over solid-base catalysts 271

C2 oxygenates

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of RhVO₄ on SiO₂ 145

Carbon pool mechanism

Hydrocarbon synthesis through CO₂ hydrogenation over CuZnOZrO₂/zeolite hybrid catalysts 165

Catalyst rejuvenation

Metal recovery and rejuvenation of metal-loaded spent catalysts 27 Catalytic activity

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and adsorbate interactions determined by CW and pulsed electron spin resonance 81

Catalytic oxidation

Hydrogen sulphide emission control by combined adsorption and catalytic combustion 67

Selective removal of H₂S from coke oven gas 73

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

Characterization

Supported gold catalysis derived from the interaction of a Auphosphine complex with as-precipitated titanium hydroxide and titanium oxide 333

Chlorinated VOC (CVOC)

MCM-48 supported chromium catalyst for trichloroethylene oxidation 101

Chlorobenzene formation

The effects of residual chlorine on the behaviour of platinum group metals for oxidation of different hydrocarbons 93

CO insertion

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

CO

Hydrocarbon synthesis through CO₂ hydrogenation over CuZnOZrO₂/zeolite hybrid catalysts 165

13CO

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

 CO_2

Hydrocarbon synthesis through CO₂ hydrogenation over CuZnOZrO₂/zeolite hybrid catalysts 165

CO hydrogenation

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of RhVO₄ on SiO₂ 145

CO oxidation

Supported gold catalysis derived from the interaction of a Auphosphine complex with as-precipitated titanium hydroxide and titanium oxide 333

Consecutive mechanism

Hydrocarbon synthesis through CO₂ hydrogenation over CuZnOZrO₂/zeolite hybrid catalysts 165

Cu/7SM 5

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

Cumene

Transalkylation reaction – An alternative route to produce industrially important intermediates such as cymene 245

Cyanoethylation

Cyanoethylation of alcohols over solid base catalysts 277 Cyclodextrins

New catalytic systems for selective oxidation of aromatic compounds by hydrogen peroxide 189

Cymene

Transalkylation reaction - An alternative route to produce industrially important intermediates such as cymene 245

Deactivation

An investigation on Pd/C industrial catalysts for the purification of terephthalic acid 129

Dealumination

Transalkylation of toluene and 1,2,4-trimethylbenzene over large pore zeolites 223

Demet process

Metal recovery and rejuvenation of metal-loaded spent catalysts 27

Deuterium

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

1,4-Diisopropylbenzene

Transalkylation reaction - An alternative route to produce industrially important intermediates such as cymene 245

Dioxygen complex

Reductive activation of dioxygen: A new concept for the catalytic oxidation 183

Double bond migration

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Effect of chlorine

The effects of residual chlorine on the behaviour of platinum group metals for oxidation of different hydrocarbons 93

Electron spin resonance

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and adsorbate interactions determined by CW and pulsed electron spin resonance 81

Elemental sulfur

Selective removal of H₂S from coke oven gas 73

ENien

In situ EXAFS study of the nucleation and crystal growth of Ni particles on SiO_2 support 315

Equilibrium

An integrated purification and production of hydrogen with a palladium membrane-catalytic reactor 343

Ethylene glycol

Synthesis of MCM-41 using microwave heating with ethylene glycol 301

Ethylen

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

EXAFS

In situ EXAFS study of the nucleation and crystal growth of Ni particles on SiO₂ support 315

Molybdenum ZSM-5 zeolite catalysts for the conversion of methane to benzene 293

FTIR

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

Gallosilicates

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and adsorbate interactions determined by CW and pulsed electron spin resonance 81

H-beta

Transalkylation of toluene and 1,2,4-trimethylbenzene over large pore zeolites 223

Transalkylation reaction - An alternative route to produce industrially important intermediates such as cymene 245

H-mordenite

Transalkylation of toluene and 1,2,4-trimethylbenzene over large pore zeolites 223

H-omega

Transalkylation of toluene and 1,2,4-trimethylbenzene over large pore zeolites 223

H-Y

Transalkylation reaction – An alternative route to produce industrially important intermediates such as cymene 245

H-ZSM-12

Transalkylation reaction – An alternative route to produce industrially important intermediates such as cymene 245

Heteropolyacid

Investigation of redox potential and negative differential resistance behavior of heteropolyacids by scanning tunneling microscopy 285

Higher olefin

Thermoregulated phase transfer ligands and catalysis. III. Aqueous/organic two-phase hydroformylation of higher olefins by thermoregulated phase-transfer catalysis 175

Highly dispersed Pd/SiO₂

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Hybrid catalyst

Hydrocarbon synthesis through CO_2 hydrogenation over $CuZnOZrO_2/zeolite$ hybrid catalysts 165

Hydrocarbon oxidation

The effects of residual chlorine on the behaviour of platinum group metals for oxidation of different hydrocarbons 93

Hydroformylation

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Thermoregulated phase transfer ligands and catalysis. III. Aqueous/organic two-phase hydroformylation of higher olefins by thermoregulated phase-transfer catalysis 175

Hydrogen

An integrated purification and production of hydrogen with a palladium membrane-catalytic reactor 343

Hydrogen production in the conversion of 2-methylbutane over a series of acid catalysts 235

Hydrogen peroxide

New catalytic systems for selective oxidation of aromatic compounds by hydrogen peroxide 189

Hydrogen sulfide

Selective removal of H₂S from coke oven gas 73

Hydrogen sulphide

Hydrogen sulphide emission control by combined adsorption and catalytic combustion 67

Hydrogenation

An investigation on Pd/C industrial catalysts for the purification of terephthalic acid 129

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Hydrophobic supports

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

Hydroxylation

New catalytic systems for selective oxidation of aromatic compounds by hydrogen peroxide 189

HZSM-5

Hydrocarbon synthesis through CO₂ hydrogenation over CuZnOZrO₂/zeolite hybrid catalysts 165

ΙΝi

In situ EXAFS study of the nucleation and crystal growth of Ni particles on SiO₂ support 315

Ion-exchangeable layered material

Recent progress of photocatalysts for overall water splitting 17 iso-Butene skeletal isomerization

The reversible skeletal isomerization between *n*-butenes and isobutene over solid acid catalysts 215

Isomerization

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Isotope

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Kinetic modeling

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

I

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and adsorbate interactions determined by CW and pulsed electron spin resonance 81

Mass transfer coefficients

Pseudo-steady state method on study of xylose hydrogenation in a trickle-bed reactor 351

MCM-41

Synthesis of MCM-41 using microwave heating with ethylene glycol 301

MCM-48

MCM-48 supported chromium catalyst for trichloroethylene oxidation 101

Metal recovery

Metal recovery and rejuvenation of metal-loaded spent catalysts

Metal-metalloid catalyst

Chemical preparation and characterization of metal-metalloid ultrafine amorphous alloy particles 3

Methane

Molybdenum ZSM-5 zeolite catalysts for the conversion of methane to benzene 293

Methanol

Hydrocarbon synthesis through CO_2 hydrogenation over $CuZnOZrO_2/zeo$ lite hybrid catalysts 165

2-Methylbutane

Hydrogen production in the conversion of 2-methylbutane over a series of acid catalysts 235

MgMoO₄

Selective oxidative dehydrogenation of propane over surface molybdenum-enriched MgMoO₄ catalyst 199

Microwave

Synthesis of MCM-41 using microwave heating with ethylene glycol 301

Mo dimer

The structure analysis of $MoO_x/TiO_2(110)$ by polarization-dependent total-reflection fluorescence X-ray absorption fine structure 309

Model catalyst

The structure analysis of MoO_x/TiO₂(110) by polarization-dependent total-reflection fluorescence X-ray absorption fine structure 309

Molybdenum

Molybdenum ZSM-5 zeolite catalysts for the conversion of methane to benzene 293

Monomolecular reaction

The reversible skeletal isomerization between *n*-butenes and isobutene over solid acid catalysts 215

MoO_x clusters

Selective oxidative dehydrogenation of propane over surface molybdenum-enriched MgMoO₄ catalyst 199

Mordenite

The characteristics of a copper-exchanged natural zeolite for NO reduction by NH₃ and C₃H₆ 57

Natural zeolite

The characteristics of a copper-exchanged natural zeolite for NO reduction by NH₃ and C₃H₆ 57

MDD

Investigation of redox potential and negative differential resistance behavior of heteropolyacids by scanning tunneling microscopy 285

NO reduction

The characteristics of a copper-exchanged natural zeolite for NO reduction by NH $_3$ and C_3H_6 57

O-O cleavage

Reductive activation of dioxygen: A new concept for the catalytic oxidation 183

O-alkylation

O-alkylation of phenol derivatives over basic zeolites 253

Odour control

Hydrogen sulphide emission control by combined adsorption and catalytic combustion 67

Offretite

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and adsorbate interactions determined by CW and pulsed electron spin resonance 81

Omega

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and adsorbate interactions determined by CW and pulsed electron spin resonance 81

Overall water splitting

Recent progress of photocatalysts for overall water splitting 17 Oxidation

Hydrogen sulphide emission control by combined adsorption and catalytic combustion 67

New catalytic systems for selective oxidation of aromatic compounds by hydrogen peroxide 189

Oxidative dehydrogenation

Selective oxidative dehydrogenation of propane over surface molybdenum-enriched $MgMoO_4$ catalyst 199

Oxyger

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

Oxygen adsorption

Properties of adsorbed oxygen on Au/SiO₂ 205

Palladium catalyst

An investigation on Pd/C industrial catalysts for the purification of terephthalic acid 129

Palladium membrane

An integrated purification and production of hydrogen with a palladium membrane-catalytic reactor 343

Palladium

The effects of residual chlorine on the behaviour of platinum group metals for oxidation of different hydrocarbons 93

Paramagnetic Cu(II)

Evaluation of relative catalytic activities of Cu(II)-exchanged L, offretite and omega gallosilicates based on Cu(II) location and

adsorbate interactions determined by CW and pulsed electron spin resonance 81

Pd/C

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Pheno

O-alkylation of phenol derivatives over basic zeolites 253

Photocatalyst

Recent progress of photocatalysts for overall water splitting 17

Photocatalytic reduction of CO2 with H2O

Photocatalytic reduction of CO_2 with H_2O on Ti-MCM-41 and Ti-MCM-48 mesoporous zeolite catalysts 327

Photoluminescence

Synthesis of MCM-41 using microwave heating with ethylene glycol 301

Platinum

The effects of residual chlorine on the behaviour of platinum group metals for oxidation of different hydrocarbons 93

Polarization-dependent total-reflection fluorescence XAFS

The structure analysis of MoO_x/TiO₂(110) by polarization-dependent total-reflection fluorescence X-ray absorption fine structure 309

Poly(ethylene oxide)-substituted triphenylphosphine

Thermoregulated phase transfer ligands and catalysis. III. Aqueous/organic two-phase hydroformylation of higher olefins by thermoregulated phase-transfer catalysis 175

Precious metals

Metal recovery and rejuvenation of metal-loaded spent catalysts 27

Propane

Selective oxidative dehydrogenation of propane over surface molybdenum-enriched $MgMoO_4$ catalyst 199

Propionaldehyde

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Pseudo-steady state

Pseudo-steady state method on study of xylose hydrogenation in a trickle-bed reactor 351

Pt catalyst

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

Pt/C

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Pulse reaction

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

Reaction dynamics

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Recirculation

Hydrogen production in the conversion of 2-methylbutane over a series of acid catalysts 235

Recycle

Metal recovery and rejuvenation of metal-loaded spent catalysts

Redispersion

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of RhVO₄ on SiO₂ 145

Redox potential

Investigation of redox potential and negative differential resistance behavior of heteropolyacids by scanning tunneling microscopy 285

Regeneration

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of RhVO₄ on SiO₂ 145

Reversibility of skeletal isomerization

The reversible skeletal isomerization between *n*-butenes and isobutene over solid acid catalysts 215

Rh/C

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

Rhodium

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

The effects of residual chlorine on the behaviour of platinum group metals for oxidation of different hydrocarbons 93

RhVO₄

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of $RhVO_4$ on SiO_2 145

SAPO-34

Hydrocarbon synthesis through CO_2 hydrogenation over $CuZnOZrO_2$ /zeolite hybrid catalysts 165

SCR

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

SDB

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

Selective CH₃OH formation

Photocatalytic reduction of CO_2 with H_2O on Ti-MCM-41 and Ti-MCM-48 mesoporous zeolite catalysts 327

Semiconductor photocatalysis

A new photocatalytic reactor for destruction of toxic water pollutants by advanced oxidation process 357

Si-C bond

New Si-C bond forming reactions over solid-base catalysts 271

SMOI

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of $RhVO_4$ on SiO_2 145

SMSI

CO hydrogenation over a rhodium vanadate catalyst: Reduction and regeneration of $RhVO_4$ on SiO_2 145

Solid base catalyst

Cyanoethylation of alcohols over solid base catalysts 277 Solid-base catalysts

New Si-C bond forming reactions over solid-base catalysts 271

Steam reforming

An integrated purification and production of hydrogen with a palladium membrane-catalytic reactor 343

Stereochemistry

Racemization of (R)-(-)-10-methyl- $\Delta^{1(9)}$ -octalin: Stereochemical requirements for double bond migration (isomerization) on metal catalysts 119

STV

Investigation of redox potential and negative differential resistance behavior of heteropolyacids by scanning tunneling microscopy 285

Supported Au phosphine complex

Supported gold catalysis derived from the interaction of a Auphosphine complex with as-precipitated titanium hydroxide and titanium oxide 333

Supported gold catalyst

Supported gold catalysis derived from the interaction of a Auphosphine complex with as-precipitated titanium hydroxide and titanium oxide 333

Surfactant template

MCM-48 supported chromium catalyst for trichloroethylene oxidation 101

Syngas

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Temperature-programmed desorption

Properties of adsorbed oxygen on Au/SiO2 205

Terephthalic acid purification

An investigation on Pd/C industrial catalysts for the purification of terephthalic acid 129

Thermoregulated phase-transfer catalysis

Thermoregulated phase transfer ligands and catalysis. III. Aqueous/organic two-phase hydroformylation of higher olefins by thermoregulated phase-transfer catalysis 175

Ti-MCM-41

Photocatalytic reduction of CO₂ with H₂O on Ti-MCM-41 and Ti-MCM-48 mesoporous zeolite catalysts 327

Ti-MCM-48

Photocatalytic reduction of CO₂ with H₂O on Ti-MCM-41 and Ti-MCM-48 mesoporous zeolite catalysts 327

Ti-mesoporous zeolite

Photocatalytic reduction of CO_2 with H_2O on Ti-MCM-41 and Ti-MCM-48 mesoporous zeolite catalysts 327

TiO₂ (110)

The structure analysis of $\text{MoO}_x/\text{TiO}_2(110)$ by polarization-dependent total-reflection fluorescence X-ray absorption fine structure 309

Titanium dioxide

A new photocatalytic reactor for destruction of toxic water pollutants by advanced oxidation process 357

Toluene

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

TPD

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

Transalkylation

Transalkylation of toluene and 1,2,4-trimethylbenzene over large pore zeolites 223

Transalkylation reaction - An alternative route to produce industrially important intermediates such as cymene 245

Transient response

Dynamic and kinetic modeling of isotopic transient responses for CO insertion on Rh and Mn-Rh catalysts 151

Transition metal catalysts

MCM-48 supported chromium catalyst for trichloroethylene oxidation 101

Trichloroethylene (TCE)

MCM-48 supported chromium catalyst for trichloroethylene oxidation 101

Trickle-bed reactor

Pseudo-steady state method on study of xylose hydrogenation in a trickle-bed reactor 351

Two phase catalysis

New catalytic systems for selective oxidation of aromatic compounds by hydrogen peroxide 189

Thermoregulated phase transfer ligands and catalysis. III. Aqueous/organic two-phase hydroformylation of higher olefins by thermoregulated phase-transfer catalysis 175

Ultrafine particles

Chemical preparation and characterization of metal-metalloid ultrafine amorphous alloy particles 3

VOC

VOC deep oxidation over Pt catalysts using hydrophobic supports 111

Water

Selective removal of H₂S from coke oven gas 73

Water treatment

A new photocatalytic reactor for destruction of toxic water pollutants by advanced oxidation process 357

Water-soluble ligand

Thermoregulated phase transfer ligands and catalysis. III. Aqueous/organic two-phase hydroformylation of higher olefins by thermoregulated phase-transfer catalysis 175

XPS

Role of oxygen on NO_x SCR catalyzed over Cu/ZSM-5 studied by FTIR, TPD, XPS and micropulse reaction 47

Zeolites

Transalkylation reaction – An alternative route to produce industrially important intermediates such as cymene 245

7CM

Molybdenum ZSM-5 zeolite catalysts for the conversion of methane to benzene 293