

Catalysis Today 31 (1996) 347-350



# Subject Index

### Acid-catalyzed reactions

Development of temperature-independent quantitative structure/reactivity relationships for metal- and acid-catalyzed reactions 79

### Acidic and bifunctional catalysts

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,Al]-ZSM-5 zeolites obtained from alkali-free media 317

### Activity and selectivity

Effect of reductive and oxidative atmospheres on the propane aromatisation activity and selectivity of Ga/H-ZSM-5 catalysts 327

#### Adamantanes from petroleum

Adamantanes from petroleum with zeolites 163

#### Alkylation

Shape-selective isopropylation of naphthalene. Reactivity of 2,6-diisopropylnaphthalene on dealuminated mordenites 19

## Al-MCM-41

Synthesis of mesoporous zeolites and their application for catalytic conversion of polycyclic aromatic hydrocarbons 137

### Ammonium tetrathiomolybdate as catalyst precursor

Hydrogenation/dehydrogenation of polycyclic aromatic hydrocarbons using ammonium tetrathiomolybdate as catalyst precursor 65

### Aromatisation of propane

Aromatisation of propane over Ga/H-ZSM-5: comments on the activation of propane 233

## Aromatization

Gallium based MFI zeolites for the aromatization of propane 265

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,AI]-ZSM-5 zeolites obtained from alkali-free media 317

## Aromatization of propane

Aromatization of propane over GaHMFI catalysts. Reaction scheme, nature of the dehydrogenating species and mode of coke formation 275

## Benzothiophene

Noble metal catalysts for low-temperature naphthalene hydrogenation in the presence of benzothiophene 93

### Bifunctional catalysis

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of n-butane 247

### Biphenyl

The effect of propylene pressure on shape-selective isopropylation of biphenyl over H-mordenite 3

### Biphenyl skeleton

The synthesis of polyesters with a biphenyl skeleton by palladium catalyzed carbonylation-polycondensation 27

### Brönsted acidity

NO<sub>x</sub>/hydrocarbon reactions over gallium loaded zeolites: A review 191

### Cadmium exchanged zeolite rho

Encapsulation studies of hydrogen on cadmium exchanged zeolite rho at atmospheric pressure 199

### Carbonylation-polycondensation

The synthesis of polyesters with a biphenyl skeleton by palladium catalyzed carbonylation-polycondensation 27

#### Catalysis

Mechanistic investigations of iron/sulfur-catalyzed bond scission in aromatic hydrocarbons. A catalytic hydrogen atom transfer step involving a late transition state 105

### Catalyst

Ring-shift isomerization of *sym*-octahydrophenanthrene into *sym*-octahydroanthracene. Effects of zeolite catalysts and equilibrium compositions 145

Conformational isomerization of *cis*-decahydronaphthalene over zeolite catalysts 171

### Coke formation

Aromatization of propane over GaHMFI catalysts. Reaction scheme, nature of the dehydrogenating species and mode of coke formation 275

## O-Containing polycyclic model compounds

Hydrodeoxygenation of O-containing polycyclic model compounds using a novel organometallic catalyst precursor 121

## Cyclohexane

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,AI]-ZSM-5 zeolites obtained from alkali-free media 317

### Cyclohexene

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,AI]-ZSM-5 zeolites obtained from alkali-free media 317

## Cyclohexylation

Selective dialkylation of naphthalene with hindered alkylating agents over HM and HY zeolites under liquid phase conditions 11

## Dealumination

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,Al]-ZSM-5 zeolites obtained from alkali-free media 317

348 Subject Index

### Decahydronaphthalene

Conformational isomerization of *cis*-decahydronaphthalene over zeolite catalysts 171

#### Degalliation

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,AI]-ZSM-5 zeolites obtained from alkali-free media 317

## Dehydrogenating species

Aromatization of propane over GaHMFI catalysts. Reaction scheme, nature of the dehydrogenating species and mode of coke formation 275

#### Dehydrogenation

Hydrogenation/dehydrogenation of polycyclic aromatic hydrocarbons using ammonium tetrathiomolybdate as catalyst precursor 65

### Deuterium

Hydrogenation catalysis by thermally activated silica 57

### 2,6-Diisopropylnaphthalene

Shape-selective isopropylation of naphthalene. Reactivity of 2,6-diisopropylnaphthalene on dealuminated mordenites 19

#### Diphenylacetylene

Hydrogenation catalysis by thermally activated silica 57

## Distance preservative conditions

Catalytic activity of a mechanically mixed Ga<sub>2</sub>O<sub>e</sub>/H-MFI catalyst under distance preservative conditions 257

### Effect of propylene pressure

The effect of propylene pressure on shape-selective isopropylation of biphenyl over H-mordenite 3

#### Encapsulation studies

Encapsulation studies of hydrogen on cadmium exchanged zeolite rho at atmospheric pressure 199

## [Ga,Al]-ZSM-5

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,AI]-ZSM-5 zeolites obtained from alkali-free media 317

## GaHMFI catalysts

Aromatization of propane over GaHMFI catalysts. Reaction scheme, nature of the dehydrogenating species and mode of coke formation 275

## Ga/H-ZSM-5

Aromatisation of propane over Ga/H-ZSM-5: comments on the activation of propane 233

### Ga/H-ZSM-5 catalysts

Effect of reductive and oxidative atmospheres on the propane aromatisation activity and selectivity of Ga/H-ZSM-5 catalysts 327

## Gallium

Gallium based MFI zeolites for the aromatization of propane 265

### Gallium cation active centers

Gallium-loaded zeolites for light paraffin aromatization: evidence for exchanged gallium cation active centers 305

### Gallium exchange

 $NO_x/hydrocarbon$  reactions over gallium loaded zeolites: A review 191

## Gallium impregnation

 $NO_x/hydrocarbon$  reactions over gallium loaded zeolites: A review 191

### Gallium-loaded zeolites

Gallium-loaded zeolites for light paraffin aromatization: evidence for exchanged gallium cation active centers 305

### Ga<sub>2</sub>O<sub>a</sub>/H-MFI

Catalytic activity of a mechanically mixed  $Ga_2O_e/H$ -MFI catalyst under distance preservative conditions 257

#### Heterogeneous catalysis

Selective dialkylation of naphthalene with hindered alkylating agents over HM and HY zeolites under liquid phase conditions 11

### H-mordenite

The effect of propylene pressure on shape-selective isopropylation of biphenyl over H-mordenite 3

### Hybrid catalysts

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of *n*-butane 247

## Hydrocarbons

 $NO_x/hydrocarbon$  reactions over gallium loaded zeolites: A review 191

## Hydrocracking

Effect of modifier Pd metal on hydrocracking of polyaromatic compounds over Ni-loaded Y-type zeolite and its application as hydrodesulfurization catalyst 113

Synthesis of mesoporous zeolites and their application for catalytic conversion of polycyclic aromatic hydrocarbons 137

### Hydrodeoxygenation

Hydrodeoxygenation of O-containing polycyclic model compounds using a novel organometallic catalyst precursor 121

### Hydrodesulfurization

Effect of modifier Pd metal on hydrocracking of polyaromatic compounds over Ni-loaded Y-type zeolite and its application as hydrodesulfurization catalyst 113

#### Hydroger

Encapsulation studies of hydrogen on cadmium exchanged zeolite rho at atmospheric pressure 199

### Hydrogenation

Shape-selective hydrogenation of naphthalene over zeolitesupported Pt and Pd catalysts 45

Hydrogenation/dehydrogenation of polycyclic aromatic hydrocarbons using ammonium tetrathiomolybdate as catalyst precursor 65

Synthesis of mesoporous zeolites and their application for catalytic conversion of polycyclic aromatic hydrocarbons 137

## Hydrogenation stereochemistry

Hydrogenation catalysis by thermally activated silica 57

## Hydrogen back spillover

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of *n*-butane 247

## Hydrogen transfer

Mechanistic investigations of iron/sulfur-catalyzed bond scission in aromatic hydrocarbons. A catalytic hydrogen atom transfer step involving a late transition state 105

### Iron

Mechanistic investigations of iron/sulfur-catalyzed bond scission in aromatic hydrocarbons. A catalytic hydrogen atom transfer step involving a late transition state 105

## Isomerization

Shape-selective isopropylation of naphthalene. Reactivity of 2,6-diisopropylnaphthalene on dealuminated mordenites 19 Ring-shift isomerization of *sym*-octahydrophenanthrene into

sym-octahydroanthracene. Effects of zeolite catalysts and equilibrium compositions 145

Conformational isomerization of cis-decahydronaphthalene over zeolite catalysts 171

Subject Index 349

#### Isopropylation

Synthesis of mesoporous zeolites and their application for catalytic conversion of polycyclic aromatic hydrocarbons 137

Joint HBS/bifunctional hypothesis

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of *n*-butane 247

#### Kinetics

Conformational isomerization of cis-decahydronaphthalene over zeolite catalysts 171

### Light alkane reactions

Structure and function of metal cations in light alkane reactions catalyzed by modified H-ZSM5 207

## Light paraffin aromatization

Gallium-loaded zeolites for light paraffin aromatization: evidence for exchanged gallium cation active centers 305

#### Low alkane aromatization

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of *n*-butane 247

## Mechanically mixed Ga<sub>2</sub>O<sub>e</sub>/H-MFI

Catalytic activity of a mechanically mixed Ga<sub>2</sub>O<sub>e</sub>/H-MFI catalyst under distance preservative conditions 257

### Mesoporous molecular sieves

Synthesis of mesoporous zeolites and their application for catalytic conversion of polycyclic aromatic hydrocarbons 137 Metal-catalyzed reactions

Development of temperature-independent quantitative structure/reactivity relationships for metal- and acid-catalyzed reactions 79

### Metal cations

Structure and function of metal cations in light alkane reactions catalyzed by modified H-ZSM5 207

### Metal-supported zeolite catalyst

Effect of modifier Pd metal on hydrocracking of polyaromatic compounds over Ni-loaded Y-type zeolite and its application as hydrodesulfurization catalyst 113

### Methane

NO<sub>x</sub>/hydrocarbon reactions over gallium loaded zeolites: A review 191

### MFI zeolites

Gallium based MFI zeolites for the aromatization of propane 265

## Model compounds

Mechanistic investigations of iron/sulfur-catalyzed bond scission in aromatic hydrocarbons. A catalytic hydrogen atom transfer step involving a late transition state 105

## Modified H-ZSM5

Structure and function of metal cations in light alkane reactions catalyzed by modified H-ZSM5 207

## Molecular mechanics

Ring-shift isomerization of *sym*-octahydrophenanthrene into *sym*-octahydroanthracene. Effects of zeolite catalysts and equilibrium compositions 145

### Mordenite

Shape-selective isopropylation of naphthalene. Reactivity of 2,6-diisopropylnaphthalene on dealuminated mordenites 19

## Naphthalene

Selective dialkylation of naphthalene with hindered alkylating agents over HM and HY zeolites under liquid phase conditions 11

Shape-selective hydrogenation of naphthalene over zeolitesupported Pt and Pd catalysts 45

### Naphthalene hydrogenation

Noble metal catalysts for low-temperature naphthalene hydrogenation in the presence of benzothiophene 93

#### Noble metal catalysts

Noble metal catalysts for low-temperature naphthalene hydrogenation in the presence of benzothiophene 93

#### NO,

 $NO_x/hydrocarbon$  reactions over gallium loaded zeolites: A review 191

### Novel organometallic catalyst precursor

Hydrodeoxygenation of O-containing polycyclic model compounds using a novel organometallic catalyst precursor 121

## Octahydroanthracene

Ring-shift isomerization of *sym*-octahydrophenanthrene into *sym*-octahydroanthracene. Effects of zeolite catalysts and equilibrium compositions 145

### Octahydrophenanthrene

Ring-shift isomerization of *sym*-octahydrophenanthrene into *sym*-octahydroanthracene. Effects of zeolite catalysts and equilibrium compositions 145

## Oxidative atmospheres

Effect of reductive and oxidative atmospheres on the propane aromatisation activity and selectivity of Ga/H-ZSM-5 catalysts 327

### Palladium catalysis

The synthesis of polyesters with a biphenyl skeleton by palladium catalyzed carbonylation-polycondensation 27

#### Petroleum

Adamantanes from petroleum with zeolites 163

### Polycyclic aromatic hydrocarbons

Hydrogenation/dehydrogenation of polycyclic aromatic hydrocarbons using ammonium tetrathiomolybdate as catalyst precursor 65

Synthesis of mesoporous zeolites and their application for catalytic conversion of polycyclic aromatic hydrocarbons 137

### Polyeste:

The synthesis of polyesters with a biphenyl skeleton by palladium catalyzed carbonylation-polycondensation 27

### Propane

Aromatisation of propane over Ga/H-ZSM-5: comments on the activation of propane 233

Gallium based MFI zeolites for the aromatization of propane 265

A new way to obtain acid or bifunctional catalysts. II. Straightforward calcination of as-synthesized [Ga,Al]-ZSM-5 zeolites obtained from alkali-free media 317

## Propane aromatisation

Effect of reductive and oxidative atmospheres on the propane aromatisation activity and selectivity of Ga/H-ZSM-5 catalysts 327

## Propylene

The effect of propylene pressure on shape-selective isopropylation of biphenyl over H-mordenite 3

Shape-selective isopropylation of naphthalene. Reactivity of 2.6-diisopropylnaphthalene on dealuminated mordenites 19

350 Subject Index

### Reaction scheme

Aromatization of propane over GaHMFI catalysts. Reaction scheme, nature of the dehydrogenating species and mode of coke formation 275

### Reductive atmospheres

Effect of reductive and oxidative atmospheres on the propane aromatisation activity and selectivity of Ga/H-ZSM-5 catalysts 327

## Shape-selective alkylation

Selective dialkylation of naphthalene with hindered alkylating agents over HM and HY zeolites under liquid phase conditions 11

### Shape-selective isopropylation

The effect of propylene pressure on shape-selective isopropylation of biphenyl over H-mordenite 3

## Shape-selectivity

Shape-selective hydrogenation of naphthalene over zeolitesupported Pt and Pd catalysts 45

#### Silica surface

Hydrogenation catalysis by thermally activated silica 57

#### Structure and function

Structure and function of metal cations in light alkane reactions catalyzed by modified H-ZSM5 207

### Supported gallium oxide as co-catalyst

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of *n*-butane 247

### Synthesis

The synthesis of polyesters with a biphenyl skeleton by palladium catalyzed carbonylation-polycondensation 27

Temperature-independent quantitative structure/reactivity relationships

Development of temperature-independent quantitative structure/reactivity relationships for metal- and acid-catalyzed reactions 79

## Zeolite

Ring-shift isomerization of *sym*-octahydrophenanthrene into *sym*-octahydroanthracene. Effects of zeolite catalysts and equilibrium compositions 145

Conformational isomerization of *cis*-decahydronaphthalene over zeolite catalysts 171

Encapsulation studies of hydrogen on cadmium exchanged zeolite rho at atmospheric pressure 199

### Zeolites

Selective dialkylation of naphthalene with hindered alkylating agents over HM and HY zeolites under liquid phase conditions 11

Adamantanes from petroleum with zeolites 163

 $NO_x/hydrocarbon$  reactions over gallium loaded zeolites: A review 191

### ZSM-5 zeolite

Hybrid catalysts containing zeolite ZSM-5 and supported gallium oxide in the aromatization of *n*-butane 247