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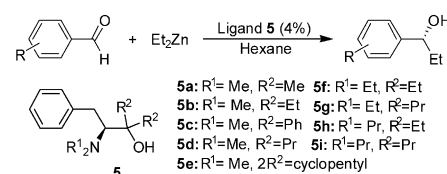
Articles

**Chao-shan Da, Ming Ni, Zhi-jian Han,
Fan Yang, Rui Wang**

*Journal of Molecular Catalysis A: Chemical 245
(2006) 1*

Novel non-azacyclo 1,2-aminoalcohols derived from L-Phe and highly enantioselective addition of diethylzinc to aryl aldehydes

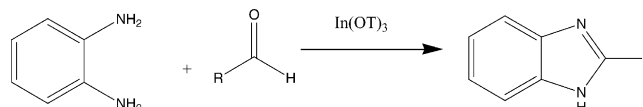
Nine novel non-azacyclo β -aminoalcohols were readily synthesized from natural L-phenylalanine in three straightforward steps. They were used as chiral ligands in the catalytic asymmetric addition of diethylzinc to aldehydes. The results showed that ligands with diethyl or dipropyl substituents on the carbinol carbons of the aminoalcohols favored higher enantioselectivities, and ligands with *N,N*-dimethyl groups gave better asymmetric induction than other *N,N*-dialkyl substituted ligands. Compound **5b** was the most optimal ligand among these aminoalcohols, and 96% ee was obtained.



Rushi Trivedi, Surya K. De, Richard A. Gibbs

*Journal of Molecular Catalysis A: Chemical 245
(2006) 8*

A convenient one-pot synthesis of 2-substituted benzimidazoles

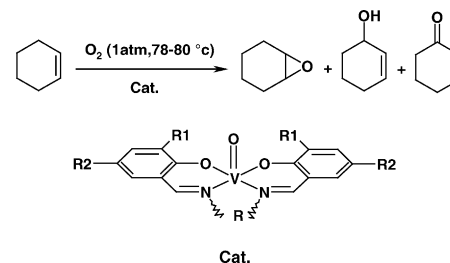


**Davar M. Boghaei, Abolfazl Bezaatpour,
Mahdi Behzad**

*Journal of Molecular Catalysis A: Chemical 245
(2006) 12*

Synthesis, characterization and catalytic activity of novel monomeric and polymeric vanadyl Schiff base complexes

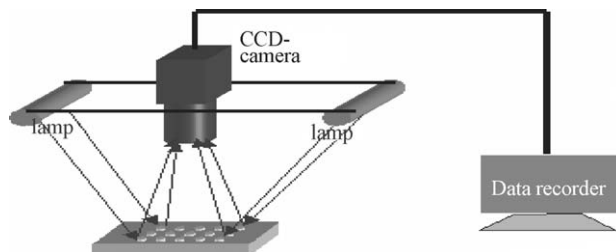
Novel oxovanadium(IV) complexes containing tetradentate Schiff base ligands have been synthesized and used for oxidation of olefin as catalyst.



**Hai Yuan Xiao, Qi Xiu Dai, Wen Sheng Li,
C.T. Au, Xiao Ping Zhou**

Journal of Molecular Catalysis A: Chemical 245
(2006) 17

Photo-degradation catalyst screening by high
throughput experiments

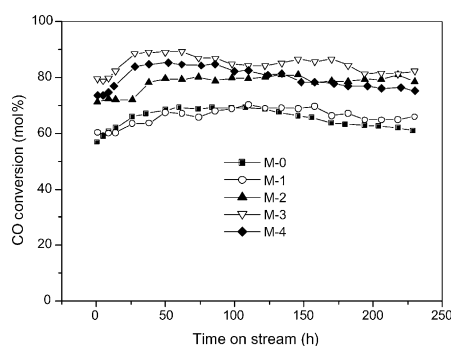


**Jun Yang, Yuchuan Sun, Yu Tang, Ying Liu,
Hulin Wang, Lei Tian, Hong Wang,
Zhixin Zhang, Hongwei Xiang, Yongwang Li**

Journal of Molecular Catalysis A: Chemical 245
(2006) 26

Effect of magnesium promoter on iron-based catalyst
for Fischer–Tropsch synthesis

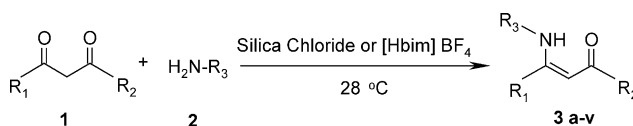
A series of precipitated Fe/Cu/K/SiO₂ catalysts incorporated with the magnesium promoter were prepared by the combination of coprecipitation and spray-drying technology. The addition of the magnesium promoter increases the BET surface area of the catalyst, and facilitates the reduction and carburization, resulting in improved activity and stability for Fischer–Tropsch synthesis.



**Atul R. Gholap, Narayan S. Chakor,
Thomas Daniel, Rajgopal J. Lahoti,
Kumar V. Srinivasan**

Journal of Molecular Catalysis A: Chemical 245
(2006) 37

A remarkably rapid regioselective synthesis of
β-enaminones using silica chloride in a heterogeneous
as well as an ionic liquid in a homogeneous medium
at room temperature

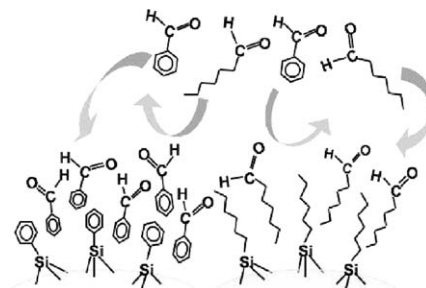


**Teruhisa Ohno, Toshiki Tsubota,
Kosuke Kakiuchi, Shinichi Miyayama,
Kazuhiro Sayama**

Journal of Molecular Catalysis A: Chemical 245
(2006) 47

Selective oxidation of aldehydes on TiO₂ photo-
catalysts modified with functional groups

Surfaces of SiO₂-covered titanium dioxide (TiO₂) photocatalysts (SiO₂-TiO₂) were modified with organosilyl groups such as hydrocarbon- and fluoro-carbon-derived groups. Oxidation of hexanal, nonanal, pentafluorobenzaldehyde, and benzaldehyde proceeded much more efficiently on the surface-modified SiO₂-TiO₂ particles than on SiO₂-TiO₂ photocatalysts without surface modification.

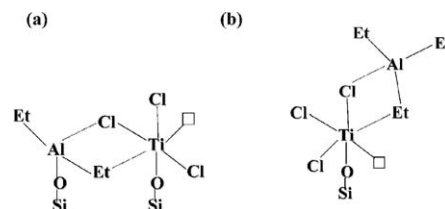


Spyridon Ntais, Angeliki Siokou

Journal of Molecular Catalysis A: Chemical 245 (2006) 87

An XPS investigation of the interaction mechanism between AlEt_3 and TiCl_4 supported on sputtered native SiO_x layer

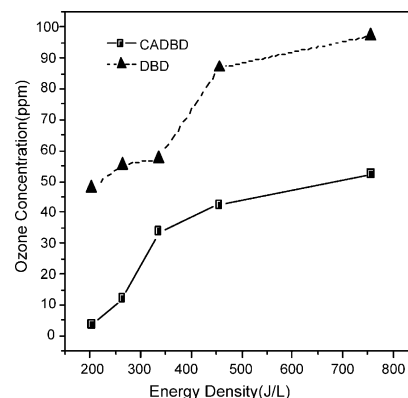
The interaction mechanism between AlEt_3 and titanium chloride supported on a flat SiO_x layer was investigated using X-ray photoelectron spectroscopy (XPS). TiCl_4 vapors react with the oxide layer mainly through isolated silanols forming Si-O-TiCl_3 . Alkylation of the titanium oxychloride surface species takes place by means of complex formation with AlEt_x that may or may not be chemically bonded on the SiO_x surface.

**Yu-Fang Guo, Dai-Qi Ye, Ke-Fu Chen, Jian-Cong He, Wei-Li Chen**

Journal of Molecular Catalysis A: Chemical 245 (2006) 93

Toluene decomposition using a wire-plate dielectric barrier discharge reactor with manganese oxide catalyst in situ

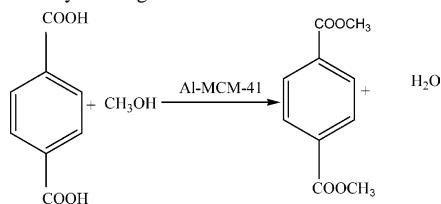
The figures in the paper present the structure of the DBD reactor with catalyst in situ and the experimental setup; the effect of oxygen content and gas flow rate on toluene decomposition; the combination effect with catalyst, including toluene removal efficiency, ozone concentration and carbon dioxide selectivity. The characterization of the catalyst before/after discharge by XRD, SEM, and FT-IR are also indicated.

**A. Palani, A. Pandurangan**

Journal of Molecular Catalysis A: Chemical 245 (2006) 101

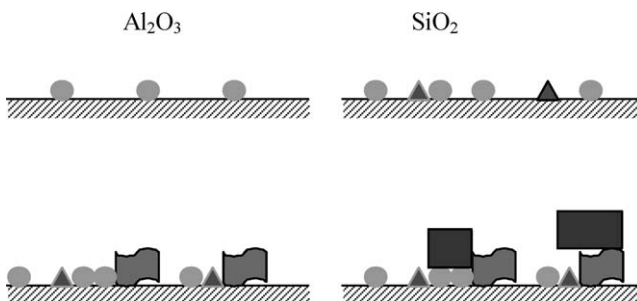
Esterification of terephthalic acid with methanol over mesoporous Al-MCM-41 molecular sieves

Al-MCM-41 molecular sieves with different Si/Al ratios were synthesised and characterised. Esterification of terephthalic acid with methanol was carried out in the vapour phase (with respect to methanol) at 200, 250, 300 and 350 °C, and under autogenous pressure conditions at 200 °C using the above synthesised materials. The reaction was shown to occur by leaching of terephthalic acid by methanol and subsequent adsorption on Bronsted acid sites following Eley-Rideal mechanism. Mono methyl terephthalate was not observed and hence esterification of one carbonyl group might not be influenced by other. Liquid phase reaction under autogenous condition gave higher conversion than vapour phase reaction. The requirement of more acidic sites was established by running the reaction over Al-MCM-41 and Si-MCM-41.

**Dexian Shi, Zhen Zhao, Chunming Xu, Aijun Duan, Jian Liu, Tao Dou**

Journal of Molecular Catalysis A: Chemical 245 (2006) 106

Characterization and catalytic performances of supported chromia catalysts for $\text{C}_{10}+$ heavy aromatics hydrodealkylation



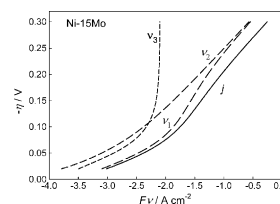
S. Martinez, M. Metikoš-Huković L. Valek

Journal of Molecular Catalysis A: Chemical 245 (2006) 114

Electrocatalytic properties of electrodeposited Ni–15Mo cathodes for the HER in acid solutions: Synergistic electronic effect

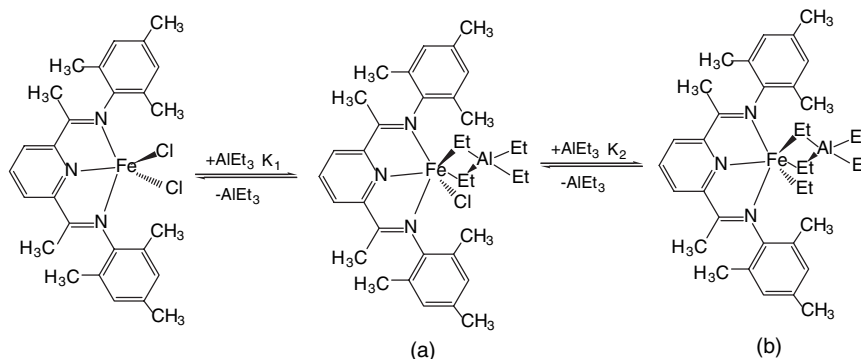
The electrocatalytic evolution of H₂ in acid solution on well-adhering layers of Ni and Ni–Mo alloy (15 at.% Mo) electrodeposited from a citrate bath onto a glassy carbon disc has been investigated. The kinetic parameters and the rate constants of the forward and backward reactions of Volmer, Heyrovsky and Tafel steps for the hydrogen evolution reaction (HER) were deduced from the linear polarization and electrochemical impedance spectroscopy (EIS) measurements. The high apparent catalytic activity was interpreted with a porous structure of the Ni–15Mo deposits having an enlarged number of active sites. The main factor influencing outstandingly high electrocatalytic activity of the Ni–15Mo electrodes as a cathode material in terms of HER in acid media has been explained by the synergistic electronic effects. The synergy was interpreted with theoretical predictions based on the complex band structure calculations and magnetic properties of Ni–Mo which suggest a pronounced density of states in d orbitals at the Fermi level obtained by alloying Ni with the threshold content of paramagnetic Mo.

The enhanced catalytic activity of the Ni–15Mo catalyst in comparison with the Ni catalyst in an acid solution was discussed within the framework of a bifunctional Volmer–Heyrovsky mechanism in which the simple cooperative functioning of the alloy components is mediated via a rapid intra-(inter) H-atoms diffusion. Ni-sites act as an H-source for Mo-sites where the ion-atom recombination (and H₂ desorption) takes place. As a results, the ion-atom recombination reaction rate increases in comparison to pure Ni.

**Shibo Wang, Dongbing Liu, Rubin Huang, Yudong Zhang, Bingquan Mao**

Journal of Molecular Catalysis A: Chemical 245 (2006) 122

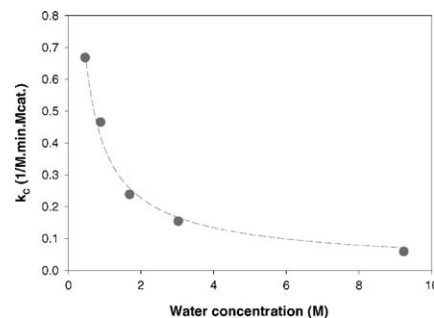
Studies on the activation and polymerization mechanism of ethylene polymerization catalyzed by bis(imino)pyridyl iron(II) precatalyst with alkylaluminum

**Yijun Liu, Edgar Lotero, James G. Goodwin Jr.**

Journal of Molecular Catalysis A: Chemical 245 (2006) 132

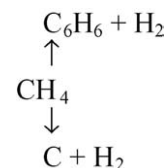
Effect of water on sulfuric acid catalyzed esterification

The catalytic activity of sulfuric acid was found to be strongly inhibited by water for liquid-phase esterification of acetic acid with methanol. The decreased activity is suggested to be caused by preferential solvation of the catalytic protons by water. A proposed model successfully predicts esterification rate as reaction progresses. Dependence of the catalyzed rate constant, k_c , on water concentration at $T = 60^\circ\text{C}$. The dotted line represents the fitted power law reaction model.

**S. Burns, J.S.J. Hargreaves, P. Pal, K.M. Parida, S. Parija**

Journal of Molecular Catalysis A: Chemical 245 (2006) 141

Using phosphorus doping of MoO₃/ZSM-5 to modify performance in methane dehydroaromatization

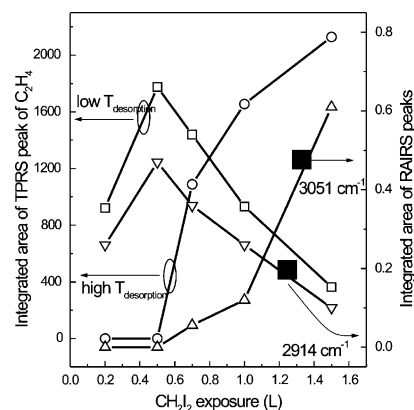


Weixin Huang

Journal of Molecular Catalysis A: Chemical 245 (2006) 147

Influence of co-adsorbates on the methylene coupling reaction on Ag(1 1 1)

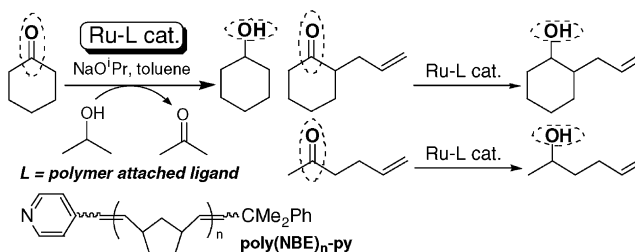
We observed that the reaction kinetics of methylene coupling on Ag(1 1 1) is affected by co-adsorbates (surface iodine and CH₂I₂). We believe that it is the migration and/or assembly of methylene on the surface, not the actual methylene coupling reaction, which is influenced by the co-adsorbates.

**Kotohiro Nomura, Yutaka Kuromatsu**

Journal of Molecular Catalysis A: Chemical 245 (2006) 152

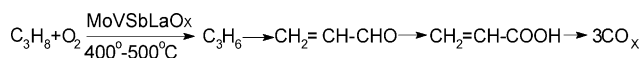
Selective hydrogen transfer reduction of ketones by recyclable ruthenium complex catalysts containing a 'ROMP polymer-attached' ligand

Various pyridine and 2,2'-bipyridyl ligands attached to the polymer chain end were prepared by the living ring-opening metathesis polymerization. The activity for ruthenium catalyzed hydrogen transfer reduction of cyclohexanone increased upon addition of the ligand, and the catalyst could be reused without deactivation. The exclusive reduction of carbonyl group in various ketones could be achieved in this catalysis.

**V.H. Rane, U. Rodemerck, M. Baerns**

Journal of Molecular Catalysis A: Chemical 245 (2006) 161

Oxidation of propane to acrylic acid over Mo-V-Sb-La-O_x catalysts: Influence of catalyst preparation and calcination conditions

**Ahmed K. Aboul-Gheit, Sameh M. Aboul-Fotouh, Sohair M. Abdel-Hamid, Noha A.K. Aboul-Gheit**

Journal of Molecular Catalysis A: Chemical 245 (2006) 167

Hydroconversion of cyclohexene using H-ZSM-5 zeolite catalysts promoted via hydrochlorination and/or platinum incorporation

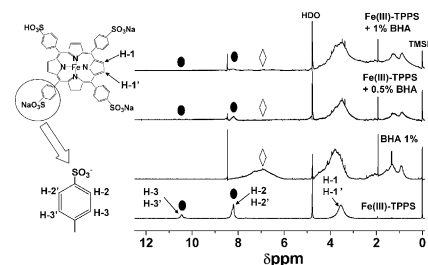
Cyclohexene (CHE) was hydroconverted in a flow reactor at atmospheric pressure and temperatures of 50–400 °C using the catalysts: H-ZSM-5, H-ZSM-5(HCl), Pt/H-ZSM-5 or Pt/H-ZSM-5(HCl). The acid sites strength distribution, Pt dispersion, XRD, SEM and TEM photography for these catalysts were evaluated. The reaction steps of CHE hydroconversion were found to be as follows: CHE ↔ cyclohexane; CHE ↔ methylcyclopentenes (MCPEs) ↔ methylcyclopentane (MCPA); CHE ↔ cyclohexadienes (CHDEs) ↔ benzene; benzene ↔ alkylbenzenes; CHE and others ↔ hydrocracked products. Doping of 3.0% HCl in H-ZSM-5 zeolite enhanced acid sites number and strength, whereas its doping in Pt/H-ZSM-5 enhanced acid sites number as well as Pt dispersion in the catalyst but slightly decreased the acid sites strength. The overall hydroconversion of CHE and its hydrogenation step to CHA were enhanced via incorporating Pt and/or doping with HCl. Also, CHE dehydrogenation was enhanced on the Pt/H-ZSM-5(HCl) catalyst, but was affected by diffusion limitation caused by deposited chloro-aluminium debris. The latter catalyst also suffered from diffusion effects during the acid catalysed alkylation and hydrocracking reactions. Indeed, HCl treatment, in the presence of Pt, significantly enhanced the debris lay-down and hence diffusion restriction. However, the isomerisation of CHE does not seem to depend on acid sites parameters or on Pt dispersion in the current catalysts. CHE dehydrogenation to benzene passes through the formation and removal of CHDEs. The magnitude of 1,3-CHDE in product using all catalysts exceeded that of 1,4-CHDE. Benzene formation was enhanced via HCl and/or Pt incorporation in the catalysts.

Masami Fukushima, Kenji Tatsumi

Journal of Molecular Catalysis A: Chemical 245 (2006) 178

Complex formation of water-soluble iron(III)-porphyrin with humic acids and their effects on the catalytic oxidation of pentachlorophenol

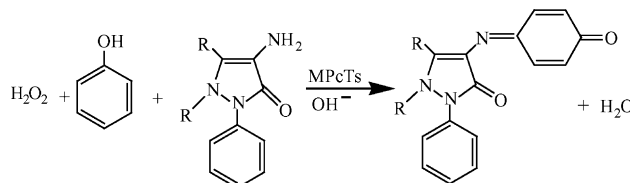
The addition of humic acid (HA) was effective in suppressing the self-oxidation of iron(III)-tetrakis(*p*-sulfonatophenyl)porphyrin (Fe(III)-TPPS) and resulted in an enhanced oxidation of pentachlorophenol in the Fe(III)-TPPS/KHSO₅ catalytic system. As shown in Figure, ¹H-NMR studies indicate that the stabilization of the Fe(III)-TPPS catalyst can be attributed to complexation between the hydrophobic regions of HAs and the sulfonatophenyl group in Fe(III)-TPPS.

**N. Rajendiran, J. Santhanalakshmi**

Journal of Molecular Catalysis A: Chemical 245 (2006) 185

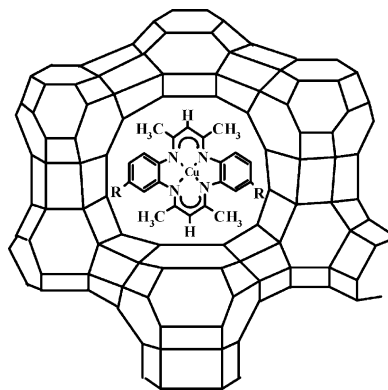
Metal tetrasulfophthalocyanines catalysed co-oxidation of phenol with 4-aminoantipyrine using hydrogen peroxide as oxidant in aqueous microheterogeneous system

The peroxide like activity of metal tetrasulfophthalocyanines has been used for co-oxidation reaction involving phenol with 4-aminoantipyrine in the presence of hydrogen peroxide. The kinetics of formation of antipyrilquinoneimine dye is measured by UV-vis spectra at $\lambda_{\max} = 505$ nm. The rate of dye formation depends on the nature of central metal ion of MPCtS, pH and microheterogeneous medium. The change in the oxidation state of the MnPcTs was examined by cyclic voltammetry and the dye was characterized using FT-IR technique.

**Masoud Salavati-Niasari**

Journal of Molecular Catalysis A: Chemical 245 (2006) 192

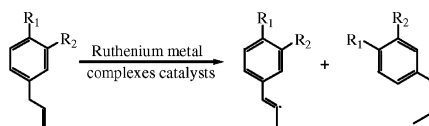
Host (nanocavity of zeolite-Y)-guest (tetraaza[14]annulene copper(II) complexes) nanocomposite materials: Synthesis, characterization and liquid phase oxidation of benzyl alcohol

**Sumeet K. Sharma, Vivek K. Srivastava, Raksh V. Jasra**

Journal of Molecular Catalysis A: Chemical 245 (2006) 200

Selective double bond isomerization of allyl phenyl ethers catalyzed by ruthenium metal complexes

The applicability of RuCl₂(PPh₃)₃ and RuCl₃(AsPh₃)₂CH₃OH metal complexes have been investigated as catalysts for the selective double bond isomerization of methyl chavicol to *trans*-anethole and eugenol to *trans*-isoeugenol in polar aprotic, polar protic and non-polar solvents. The highest conversions of, methyl chavicol (99.7%) with 95.4% selectivity of *trans*-anethole and eugenol (99.8%) with 95.6% selectivity of *trans*-isoeugenol were observed in ethanol using RuCl₂(PPh₃)₃ catalyst. Additionally, the detail kinetics of isomerization of methyl chavicol and eugenol using RuCl₂(PPh₃)₃ and RuCl₃(AsPh₃)₂CH₃OH catalysts in alcoholic solvents have also been carried out to observe the effect of the various influencing factors on the initial rate of reaction.

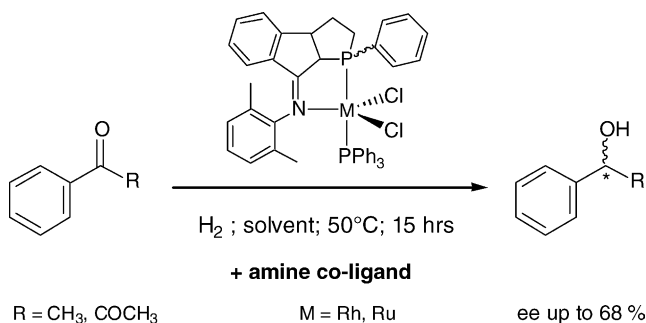


1. R₁ = -OCH₃, R₂ = H
2. R₁ = OH, R₂ = -OCH₃

**M. Lorraine Christ, Maria Zablocka,
Sally Spencer, Rebecca J. Lavender,
Marc Lemaire, Jean Pierre Majoral**

Journal of Molecular Catalysis A: Chemical 245
(2006) 210

Cyclic β -iminophosphine: New P-stereogenic ligand
for the asymmetric catalysed hydrogenation of
ketones

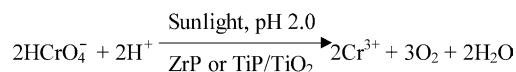


**Dipti Prakasini Das, Kulamani Parida,
Bhudev Ranjan De**

Journal of Molecular Catalysis A: Chemical 245
(2006) 217

Photocatalytic reduction of hexavalent chromium
in aqueous solution over titania pillared zirconium
phosphate and titanium phosphate under solar radi-
ation

The photo-catalytic reduction of Cr(VI) under solar radiation depends on the surface area, basal spacing and crystallite size of the titania pillared zirconium phosphate (ZrP) and titanium phosphate (TiP). The 2 and 4 wt.% titania loaded ZrP and TiP show highest Cr(VI) photo-reduction under solar radiation compared to other pillared ZrP and TiP. Almost complete Cr(VI) photo-reduction takes place (20 mg/L) at pH 2.0 in 4 h with 0.6 g/L of the catalyst:

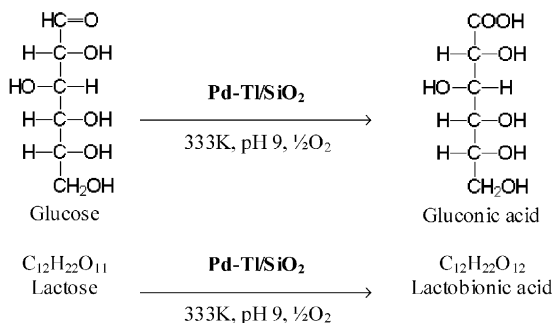


S. Karski, I. Witońska, J. Gołuchowska

Journal of Molecular Catalysis A: Chemical 245
(2006) 225

Catalytic properties of Pd-Tl/SiO₂ systems in the reac-
tion of liquid phase oxidation of aldoses

This paper deals with the oxidation of aldoses (glucose and lactose) with palladium on SiO₂ catalysts mod-
ified with thallium. The catalysts were characterized by XRD studies and temperature-programmed oxida-
tion (TPO) method after their reduction at 533 K.

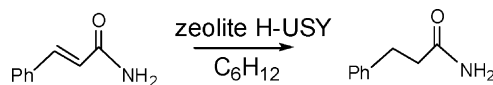


**Konstantin Yu. Koltunov, Stéphane Walspurger,
Jean Sommer**

Journal of Molecular Catalysis A: Chemical 245
(2006) 231

Selective, C,C-double bond reduction of α,β -
unsaturated carbonyl compounds with cyclohexane
using zeolites

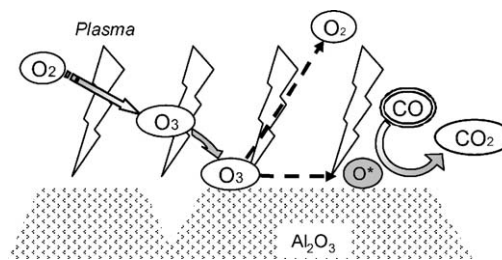
The paper describes selective reduction of C,C-double bond of unsaturated carbonyl compounds using readily available reductant (cyclohexane) and regenerable solid acid—HUSY-zeolite. This presents a novel example of the unusual catalytic ability of solid acids, which despite of comparatively low protonic acidity are able to perform reactions only expected to occur under superacidic conditions.



**Taizo Sano, Nobuaki Negishi, Emiko Sakai,
Sadao Matsuzawa**

Journal of Molecular Catalysis A: Chemical 245
(2006) 235

Contributions of photocatalytic/catalytic activities of TiO_2 and $\gamma\text{-Al}_2\text{O}_3$ in nonthermal plasma on oxidation of acetaldehyde and CO

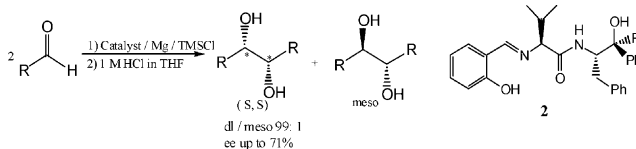


**Jiwu Wen, Jun Zhao, Xin Wang, Jianyu Dong,
Tianpa You**

Journal of Molecular Catalysis A: Chemical 245
(2006) 242

Asymmetric pinacol coupling reaction catalyzed by dipeptide-type Schiff bases

Several dipeptide Schiff bases and its mimics were synthesized conveniently from natural amino acids. Their titanium complexes were investigated in pinacol coupling reaction for the first time; good yields, high diastereoselectivity and moderate enantioselectivity were obtained.

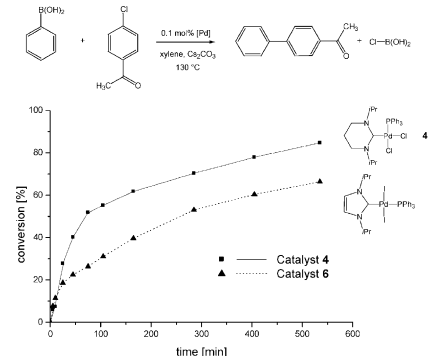


**Sabine K. Schneider, Wolfgang A. Herrmann,
Eberhardt Herdtweck**

Journal of Molecular Catalysis A: Chemical 245
(2006) 248

Active catalysts for the Suzuki coupling: Palladium complexes of tetrahydropyrimid-2-ylidenes

Tetrahydropyrimid-2-ylidenes form excellent palladium catalysts for the Suzuki–Miyaura reaction, especially when these N-heterocyclic carbene derivatives are combined with phosphines at the metal centre. A comparison with a corresponding mixed imidazol-2-ylidene palladium(II) complex clearly shows that the stronger σ -donating tetrahydropyrimid-2-ylidene ligand is superior with the regard to the catalytic performance. A specific advantage is the fact that chloro arenes work well with the new catalyst, even at low concentrations of ca. 0.01 mol%.

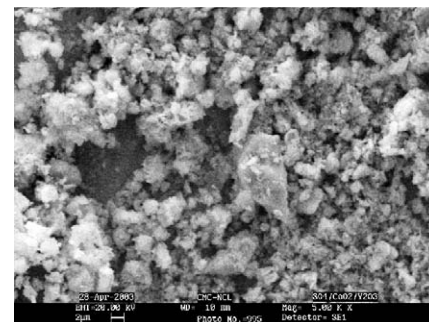


**Rajesh K. Pandey, Sharda P. Dagade,
Kusum M. Malase, Sachin B. Songire,
Pradeep Kumar**

Journal of Molecular Catalysis A: Chemical 245
(2006) 255

Synthesis of ceria-yttria based strong Lewis acid heterogeneous catalyst: Application for chemoselective acylation and ene reaction

The synthesis of a new ceria-yttria based strong Lewis acid heterogeneous catalyst is described and its application for the ene reaction and chemoselective acylation, has been demonstrated.

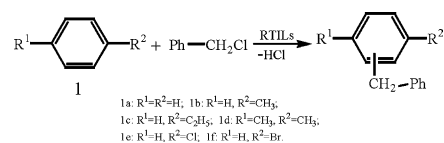


**Donghong Yin, Changzhi Li, Liang Tao,
Ningya Yu, Shan Hu, Dulin Yin**

Journal of Molecular Catalysis A: Chemical 245
(2006) 260

Synthesis of diphenylmethane derivatives in Lewis
acidic ionic liquids

The utility of ambient ionic liquids of BmimCl–MeCl_x as combination of Lewis acidic catalysts and solvents for synthesis of diphenylmethane and its derivatives via Friedel–Crafts benzylation reaction was reported. Significant rate-enhancement and higher selectivity to the target products in such ionic liquids were achieved. These ionic liquids could be conveniently recovered for recycled use.

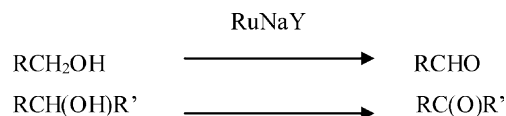


Holger B. Friedrich, Nirad Singh

Journal of Molecular Catalysis A: Chemical 245
(2006) 266

A study of zeolite NaY-supported ruthenate in the
oxidation of alcohols

Sodium ruthenate was supported on zeolite NaY. This compound was found to be an efficient and selective catalyst, with a range of co-oxidants, for the room temperature oxidation of internal and external alcohols to their respective carbonyl products.

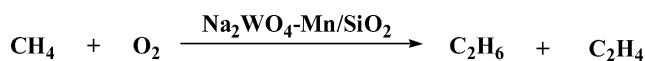


**Jiaxin Wang, Lingjun Chou, Bing Zhang,
Huanling Song, Jun Zhao, Jian Yang, Shuben Li**

Journal of Molecular Catalysis A: Chemical 245
(2006) 272

Comparative study on oxidation of methane to
ethane and ethylene over Na₂WO₄–Mn/SiO₂ cata-
lysts prepared by different methods

The 5 wt% Na₂WO₄–2 wt%Mn/SiO₂ catalysts prepared by the incipient wetness impregnation method, mixture slurry method and sol–gel method have been comparatively studied for the oxidative coupling of methane (OCM). The structural properties of the catalysts have been characterised using XRD, XPS, O₂-TPD and BET methods. The catalyst prepared by the mixture slurry method has an excellent stability and can alleviate the loss of active components during a 500 h run.



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Journal of Molecular Catalysis A: Chemical 245
(2006) 278

Asymmetric pinacol coupling catalyzed by TADDOL-
titanium complexes

Chiral diol ligands derived from tartaric acid were synthesized conveniently and applied for pinacol coupling reaction, good to excellent diastereoselectivities and moderate to good enantioselectivities were obtained.

