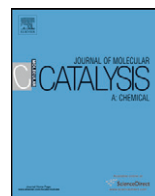




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Articles

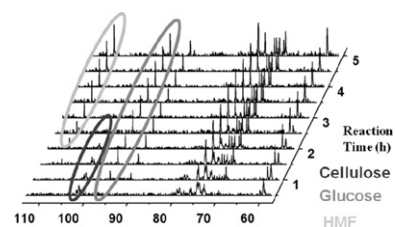
Nandita Madhavan, William Sommer, Marcus Weck*Journal of Molecular Catalysis A: Chemical 334 (2011) 1*Supporting multiple organometallic catalysts on poly(norbornene) for cyanide addition to α,β -unsaturated imides

► Two catalyst support system has been designed. ► Higher catalytic activity than homopolymer mixture or non-supported analogues. ► Supported catalyst system can be partially recycled.

**Feng Jiang, Qingjun Zhu, Ding Ma, Xiumei Liu, Xiuwen Han***Journal of Molecular Catalysis A: Chemical 334 (2011) 8*

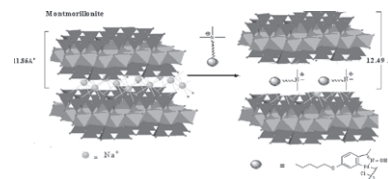
Direct conversion and NMR observation of cellulose to glucose and 5-hydroxymethylfurfural (HMF) catalyzed by the acidic ionic liquids

► The acidic ionic liquid $[C_4SO_3Hmim]HSO_4$ is an efficient catalyst for the hydrolysis of cellulose. ► *In-situ* ^{13}C NMR is an effective characterization technique to study the cellulose hydrolysis process. ► In the reaction, short reaction time favors production of glucose and longer reaction time facilitates formation of HMF.

**Vasundhara Singh, Rajni Ratti, Sukhbir Kaur***Journal of Molecular Catalysis A: Chemical 334 (2011) 13*

Synthesis and characterization of recyclable and recoverable MMT-clay exchanged ammonium tagged carbapalladacycle catalyst for Mizoroki–Heck and Sonogashira reactions in ionic liquid media

► An ammonium tagged carbapalladacycle has been synthesized in good overall yield and is well characterized. ► An organic–inorganic hybrid system has been synthesized by intercalating the synthesized carbapalladacycle in between the layers of Na^+ -MMT clay. ► The ammonium tag facilitates the intercalation of carbapalladacycle by increasing organophilicity of clay. ► The prepared carbapalladacycle and its clay–nanocomposite have been efficiently used as recyclable catalytic system in ionic liquid media for carrying out Mizoroki–Heck and Sonogashira reactions with high TONs/TOFs. ► The catalytically inert ammonium tag does not interfere in the reaction, instead being ionophilic it enhances the immobilization of carbapalladacycle in ionic liquid medium.

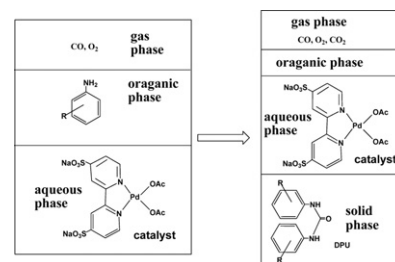


Mahesh R. Didgikar, Sunil S. Joshi, Sunil P. Gupte, Makarand M. Diwakar, Raj M. Deshpande, Raghunath V. Chaudhari

► Easy separation of urea, catalyst and organics from reaction mixture. ► Biphasic system employing water soluble Pd complex catalyst. ► Catalytic system robust under oxidation conditions. ► Catalyst recycled up to five times retaining ~ 98% of original activity. ► Over 95% conversion of aniline with 90% selectivity of urea.

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Oxidative carbonylation of amine using water-soluble palladium catalysts in biphasic media

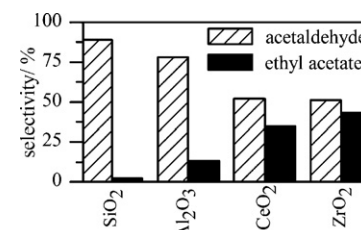


Priscila C. Zonetti, Johnatan Celnik, Sonia Letichevsky, Alexandre B. Gaspar, Lucia G. Appel

► Ethanol is a promising raw material for green chemistry processes. ► The condensation step occurs between ethoxide species and acetaldehyde. ► Oxides with strong basic sites generated the most active and selective catalysts. ► The spillover of acetaldehyde occurs during the ethyl acetate synthesis. ► Spillover can be observed employing physical mixtures comprised of catalysts.

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Chemicals from ethanol – The dehydrogenative route of the ethyl acetate one-pot synthesis

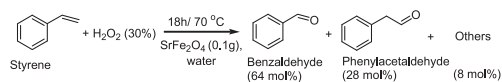


Satish K. Pardeshi, Ravindra Y. Pawar

► SrFe₂O₄ is an efficient catalyst for selective oxidation of styrene in water and H₂O₂. ► The aqueous phase oxidation of styrene proceeds by a free radical mechanism. ► The reaction initiates on catalyst surface and heterogeneous propagation in liquid.

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SrFe₂O₄ complex oxide an effective and environmentally benign catalyst for selective oxidation of styrene

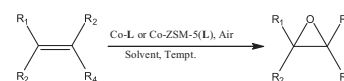


B. Qi, X.-H. Lu, S.-Y. Fang, J. Lei, Y.-L. Dong, D. Zhou, Q.-H. Xia

► The composite catalysts Co-ZSM-5(L) are prepared by a simple route. ► Co-ZSM-5(L) exhibits a high activity for the epoxidation of alkenes with air. ► These solids are highly reusable heterogeneous catalysts. ► Based on the experiments, one possible reaction mechanism is proposed.

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Aerobic epoxidation of olefins over the composite catalysts of Co-ZSM-5(L) with bi-/tridentate Schiff-base ligands



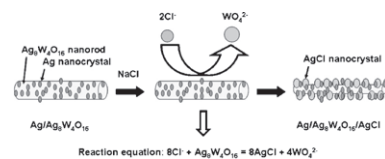
L₁: salicylaldehyde benzoylhydrazone
L₂: vanillic aldehyde benzoylhydrazone
L₃: 4-methyl benzaldehyde benzoylhydrazone

Xuefei Wang, Shufen Li, Huogen Yu, Jianguo Yu

Journal of Molecular Catalysis A: Chemical 334 (2011) 52

In situ anion-exchange synthesis and photocatalytic activity of $\text{Ag}_8\text{W}_4\text{O}_{16}/\text{AgCl}$ -nanoparticle core-shell nanorods

► $\text{Ag}_8\text{W}_4\text{O}_{16}/\text{AgCl}$ -nanoparticle core-shell nanorods were prepared. ► The AgCl nanoparticles with a diameter of less than 30 nm were obtained. ► AgCl-nanoparticle shell can be easily controlled by NaCl solution. ► AgCl nanoparticles exhibited high photocatalytic activity.

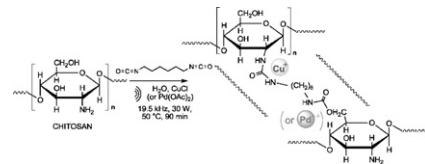


Katia Martina, Silke E.S. Leonhardt, Bernd Ondruschka, Massimo Curini, Arianna Binello, Giancarlo Cravotto

Journal of Molecular Catalysis A: Chemical 334 (2011) 60

In situ cross-linked chitosan Cu(I) or Pd(II) complexes as a versatile, eco-friendly recyclable solid catalyst

► Ultrasound-assisted procedure to synthesize solid supported Cu(I) and Pd(II) catalysts. ► Metal-loaded cross-linked chitosan as efficient, eco-friendly and recyclable catalyst. ► Cu(I)-loaded cross-linked chitosan efficiently used for click reactions. ► Pd(II)-loaded cross-linked chitosan catalyzed Suzuki couplings.

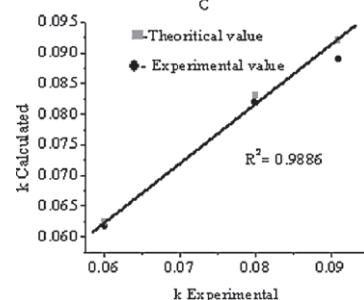


L. Gomathi Devi, K. Eraiah Rajashekhar

Journal of Molecular Catalysis A: Chemical 334 (2011) 65

A kinetic model based on non-linear regression analysis is proposed for the degradation of phenol under UV/solar light using nitrogen doped TiO_2

► A kinetic/mathematical model was developed based on the nonlinear regression analysis and the validity of the model was tested by comparing the experimentally observed and theoretically calculated data. Although this kind of model was applied for TiO_2 based photocatalysis to some extent by few research groups, so far it is never attempted elaborately for nitrogen doped ($\text{TiO}_{2-x}\text{N}_x$) photocatalysis process. ► The use of electron acceptor in photocatalytic reactions involving nitrogen doped TiO_2 is never attempted. ► Though we find impressive number of publications for the use of hydrogen peroxide as an electron acceptor, least approach is made towards the application of ammonium persulfate in the photocatalysis. ► The photocatalysis of $\text{TiO}_{2-x}\text{N}_x$ in the presence of ammonium persulfate seems to be more efficient than hydrogen peroxide. ► This model provides the information about the effect of exact operational parameters.

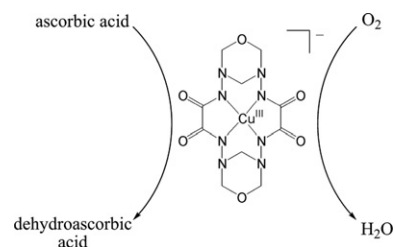


József S. Pap, Łukasz Szywriel, Magdalena Rowińska-Żyrek, Konstantin Nikitin, Igor O. Fritsky, Henryk Kozłowski

Journal of Molecular Catalysis A: Chemical 334 (2011) 77

An efficient copper(III) catalyst in the four electron reduction of molecular oxygen by L-ascorbic acid

► Copper(III)-catalysed reduction of molecular oxygen by L-ascorbic acid ► Water and dehydroascorbic acid are the primary products ► The copper(III) and the copper(II) forms are involved in the catalytic cycle.

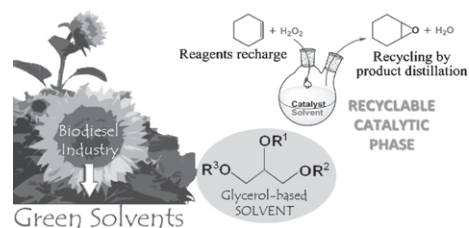


**Héctor García-Marín, John C. van der Toorn,
José A. Mayoral, José I. García,
Isabel W.C. E. Arends**

Journal of Molecular Catalysis A: Chemical 334 (2011) 83

Epoxidation of cyclooctene and cyclohexene with hydrogen peroxide catalyzed by bis [3,5-bis (trifluoromethyl)-diphenyl] diselenide: Recyclable catalyst-containing phases through the use of glycerol-derived solvents

- ▶ Green epoxidation of alkenes with diluted hydrogen peroxide.
- ▶ Green solvents derived from glycerol.
- ▶ Homogeneous catalytic phase recycling through product distillation.

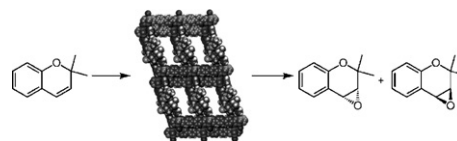


**Gloria A.E. Oxford, David Dubbeldam,
Linda J. Broadbelt, Randall Q. Snurr**

Journal of Molecular Catalysis A: Chemical 334 (2011) 89

Elucidating steric effects on enantioselective epoxidation catalyzed by (salen)Mn in metal-organic frameworks

- ▶ Interpenetration of a metal-organic framework leads to lower enantioselectivity of (salen)Mn.
- ▶ The framework restricts the approach of chromene to the (salen)Mn
- ▶ The framework restricts conformational changes associated with high enantioselectivity.

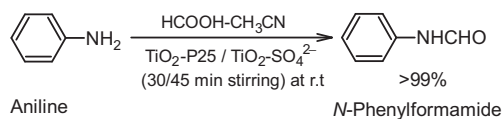


B. Krishnakumar, M. Swaminathan

Journal of Molecular Catalysis A: Chemical 334 (2011) 98

A convenient method for the *N*-formylation of amines at room temperature using TiO₂-P25 or sulfated titania

- ▶ *N*-formylation of amines is a useful reaction in synthetic organic chemistry.
- ▶ TiO₂ possesses a unique type of surface involving both redox and acid-base sites.
- ▶ Sulfated titania has more acidic sites and so more efficient than TiO₂-P25.
- ▶ Easy product isolation and catalyst reusability make this reaction eco-friendly.

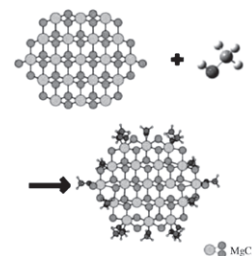


**Anniina Turunen, Mikko Linnolahti,
Virve A. Karttunen, Tapani A. Pakkanen,
Peter Denifl, Timo Leinonen**

Journal of Molecular Catalysis A: Chemical 334 (2011) 103

Microstructure control of magnesium dichloride crystallites by electron donors: The effect of methanol

- ▶ Control the microstructure of MgCl₂ crystallites by electron donors.
- ▶ Demonstrated by quantum chemical calculations using methanol as a model donor.
- ▶ Saturation of the crystal surface by methanol greatly stabilizes (1 1 0) surface sites.
- ▶ Control of the shape of crystallite attainable by choice of electron donor.

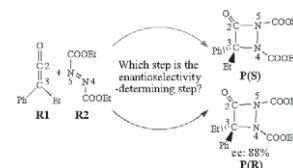


**Donghui Wei, Yanyan Zhu, Cong Zhang,
Dongzhen Sun, Wenjing Zhang, Mingsheng Tang**

Journal of Molecular Catalysis A: Chemical 334 (2011) 108

A DFT study on enantioselective synthesis of aza- β -lactams via NHC-catalyzed [2 + 2] cycloaddition of ketenes with diazenedicarboxylates

► This study provides a model for predicting the enantioselectivity of the product, which should be helpful in designing other enantioselective catalyst.

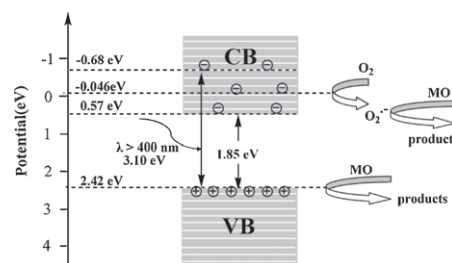


**Yongyu Li, Jianshe Wang, Hongchang Yao,
Liyun Dang, Zhongjun Li**

Journal of Molecular Catalysis A: Chemical 334 (2011) 116

Efficient decomposition of organic compounds and reaction mechanism with BiOI photocatalyst under visible light irradiation

► BiOI photocatalyst was synthesized successfully. ► BiOI exhibits excellent photocatalytic activity. ► Photodegradation mechanism was investigated systematically. ► h_{ν}^{+} and $O_2^{\cdot-}$ radicals were proven to be the main oxidants.

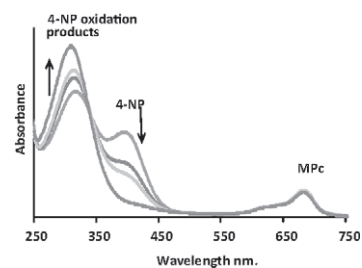


**Taofeek B. Ogunbayo, Edith Antunes,
Tebello Nyokong**

Journal of Molecular Catalysis A: Chemical 334 (2011) 123

Investigation of homogeneous photosensitized oxidation activities of palladium and platinum octasubstituted phthalocyanines: Oxidation of 4-nitrophenol

► Palladium and platinum phthalocyanines photocatalyse the transformation of 4-chlorophenol. ► Palladium-(dodecylthio)phthalocyanine giving the highest phototransformation quantum yield. ► The products of phototransformation are hydroquinone and 1,4-benzoquinone. ► Both type I and type II mechanisms are implicated in the phototransformation of 4-nitrophenol.



Nam T.S. Phan, Ha V. Le

Journal of Molecular Catalysis A: Chemical 334 (2011) 130

Superparamagnetic nanoparticles-supported phosphine-free palladium catalyst for the Sonogashira coupling reaction

► The palladium catalyst immobilized on superparamagnetic nanoparticles was prepared. ► The catalyst was used for the Sonogashira reaction without phosphine ligands. ► The catalyst could be facily isolated from the reaction mixture. ► The catalyst could be reused without significant degradation in activity. ► There was no contribution from homogeneous catalysis of leached active palladium.

