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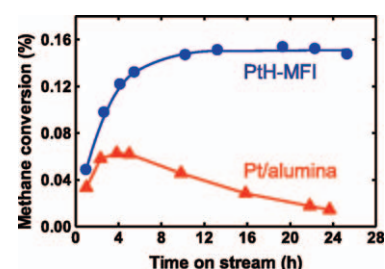
Contents

Articles

Dmitry B. Lukyanov, Tanya Vazhnova*Journal of Molecular Catalysis A: Chemical* 342–343 (2011) 1

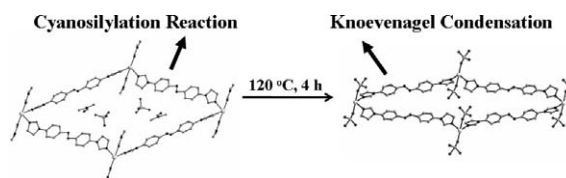
Transformation of methane over platinum supported catalysts at moderate temperature

► Methane is converted into ethane during many hours over Pt catalysts at 370°C. ► Reaction proceeds via transformation of surface CH_x and C species. ► Stable catalyst performance is associated with slow coupling of carbon species. ► Other transition metals (Co, Fe, Ru, Rh) could be active in methane conversion.

**Manish K. Sharma, Prabal P. Singh, Parimal K. Bharadwaj***Journal of Molecular Catalysis A: Chemical* 342–343 (2011) 6

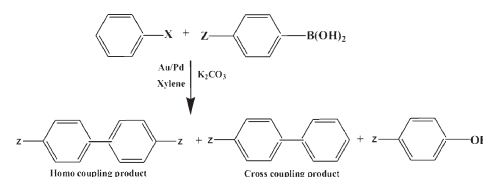
Two-dimensional rhombus grid coordination polymer showing heterogeneous catalytic activities

► Cd(II) based coordination polymer as heterogeneous catalyst. ► As-synthesized polymer acts as a Weak Lewis acidic catalyst. ► After activation the resulting polymer exhibits weak Lewis basic catalytic activity. ► All catalytic reactions are heterogeneous in nature.

**K.M. Parida, Sudarshan Singha, P.C. Sahoo, Swagatika Sahu***Journal of Molecular Catalysis A: Chemical* 342–343 (2011) 11

A fascinating Suzuki homo-coupling reaction over anchored gold Schiff base complexes on mesoporous host

► The present study explores the homocoupling of aryl boronic acid by using Au(III) Schiff base complex anchored mesoporous silicas. ► The catalyst was characterised by XRD, FTIR, UV–vis DRS, TG–DTA, etc. ► Catalyst was tested using the coupling of phenylboronic acid with bromo benzene both in the presence and absence of K_2CO_3 and with xylene as solvent. ► The results indicate that in our catalytic system base is not needed for the activation of phenylboronic acid, and its only role is to neutralize the boric acid. ► The optimized catalysts are also active in the coupling of a range of aryl boronic acids, and after four catalytic runs they show virtually no drop in activity.

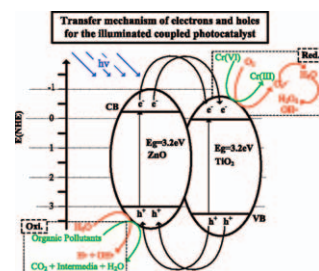


Young Ku, Ying-Hau Huang, Yiang-Chen Chou

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 18

Preparation and characterization of ZnO/TiO₂ for the photocatalytic reduction of Cr(VI) in aqueous solution

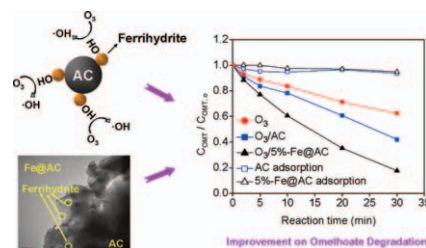
► ZnO/TiO₂ is prepared for the photocatalytic reduction of hexavalent chromium. ► The coupled ZnO retards the TiO₂ crystal phase transformation from anatase to rutile. ► The aggregation of ZnO/TiO₂ particles is inhibited during calcinations. ► ZnO/TiO₂ shows the higher activity for Cr(VI) reduction as compared to pure TiO₂. ► 2.0 mol%ZnO/TiO₂ exhibits the maximum photocatalytic reduction of Cr(VI).

**Wencui Ling, Zhimin Qiang, Yanwei Shi, Tao Zhang, Bingzhi Dong**

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 23

Fe(III)-loaded activated carbon as catalyst to improve omethoate degradation by ozone in water

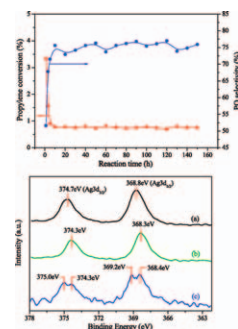
► Fe@AC significantly promotes omethoate degradation during ozonation. ► Fe@AC enhances ozone decomposition to generate more hydroxyl radicals. ► Ferrihydrite particles on AC provide the major active sites. ► Neutral surface charge of Fe@AC plays an important role in catalytic ozonation.

**Wei Yao, Xiang Zheng, Yanglong Guo, Wangcheng Zhan, Yun Guo, Guanzhong Lu**

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 30

Role of chlorohydrocarbon in increasing selectivity of propylene oxide over Ag–Y₂O₃–K₂O/α–Al₂O₃ catalyst for epoxidation of propylene by molecular oxygen

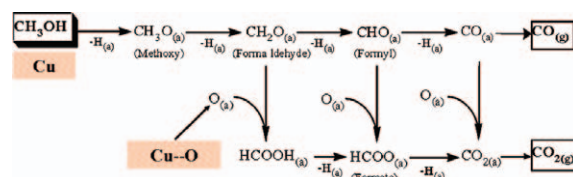
► Concentration of chlorohydrocarbon had positive effect on PO selectivity. ► Ag-based catalyst showed better PO selectivity and stability with TCE in feed gas. ► TCE could effectively restrain the agglomeration of Ag crystallites. ► Coexistence of Ag and AgCl was favorable to increase PO selectivity. ► Presence of Cl could withdraw electrons from nearby Ag and thus make Ag electropositive.

**Shawn D. Lin, Hongkui Cheng, Ting C. Hsiao**

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 35

In situ DRIFTS study on the methanol oxidation by lattice oxygen over Cu/ZnO catalyst

► The state of Cu in Cu/ZnO was controlled by pretreating at different temperatures. ► In situ DRIFTS reveals the adspecies after methanol adsorption on Cu/ZnO catalyst. ► Lattice oxygen reacts with MeOH to CO₂, and reduced Cu catalyzes this reaction.

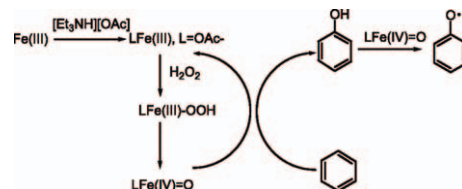


**Xiaoke Hu, Liangfang Zhu, Xueqin Wang,
Bin Guo, Jiaquan Xu, Guiying Li, Changwei Hu**

Journal of Molecular Catalysis A: Chemical 342–343
(2011) 41

Active species formed in a Fenton-like system in the medium of triethylammonium acetate ionic liquid for hydroxylation of benzene to phenol

- The iron(IV)-oxo species is the main active oxidizing species.
- Hydroxyl radical was promoted with the addition of excessive H_2O_2 .
- Over-oxidation of phenol is partly prohibited by the hydrogen-bond interaction.
- Hydroxyl radical leads to an increased over-oxidation of phenol.

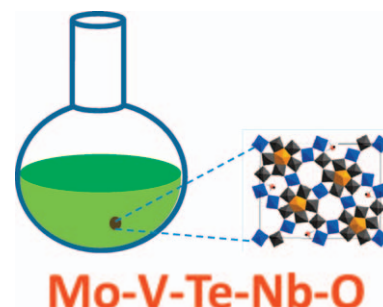


**Irmawati Ramli, Pablo Botella, Francisco Ivars,
Woi Pei Meng, Siti Murni Mohamad Zawawi,
Hossein Abbastabar Ahangar, Selene Hernández,
José M. López Nieto**

Journal of Molecular Catalysis A: Chemical 342–343
(2011) 50

Reflux method as a novel route for the synthesis of $MoVTeNbO_x$ catalysts for selective oxidation of propane to acrylic acid

- $Mo-V-Te-Nb-O$ metal oxides can be prepared by refluxing the corresponding salts.
- M1 phase is selectively obtained from solids prepared at a refluxing time of 7–14 days.
- Active and selective catalysts for partial oxidation of propane to acrylic acid have been achieved.



**Norihisa Fukaya, Masae Ueda, Syun-ya Onozawa,
Kyoko K. Bando, Takayuki Miyaji, Yukio Takagi,
Toshiyasu Sakakura, Hiroyuki Yasuda**

Journal of Molecular Catalysis A: Chemical 342–343
(2011) 58

Palladium complex catalysts immobilized on silica via a tripodal linker unit with amino groups: Preparation, characterization, and application to the Suzuki–Miyaura coupling

- The silica-immobilized Pd complex catalysts were prepared using a tripodal linker.
- The tripodal linker was effective for preventing Pd leaching for Suzuki coupling.
- The tripodal linker improved catalyst recyclability for Suzuki coupling.

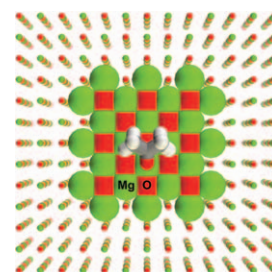


**Galina P. Petrova, Georgi N. Vayssilov,
Boris Galabov**

Journal of Molecular Catalysis A: Chemical 342–343
(2011) 67

Enhanced reactivity of carbonyl compounds on MgO surface: A computational study

- Adsorption of carbonyl derivatives on regular $MgO(001)$ was theoretically modeled.
- The activation of the organic molecules was analyzed by means of different reactivity indices derived from density functional theory data.
- The influence of the support and the substituent effect on reactivity were also discussed.



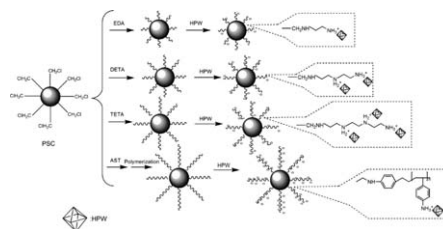
Tong Chen, Ling Zhu, Xiaoyan Liu, Yuanyuan Li, Chuande Zhao, Zhigang Xu, Wenfu Yan, Haixia Zhang

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 74

Synthesis and antioxidant activity of phosphorylated polysaccharide from *Portulaca oleracea* L. with $H_3PW_{12}O_{40}$ immobilized on polyamine functionalized polystyrene bead as catalyst

Tong Chen, Ling Zhu, Xiaoyan Liu, Yuanyuan Li, Chuande Zhao, Zhigang Xu, Wenfu Yan, Haixia Zhang

► Esterification of biomacromolecules was carried out by solid catalysis. ► Antioxidant activities of polysaccharide were increased by molecular modification. ► Catalysis was synthesized by $H_3PW_{12}O_{40}$ immobilized on polystyrene bead..

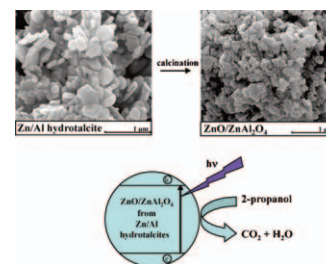


D. Carriazo, M. del Arco, E. García-López, G. Marci, C. Martín, L. Palmisano, V. Rives

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 83

Zn,Al hydrotalcites calcined at different temperatures: Preparation, characterization and photocatalytic activity in gas–solid regime

► Zn/Al hydrotalcites were used as precursors for the obtention of ZnO and $ZnAl_2O_4$. ► Zn^{2+}/Al^{3+} ratio and calcination temperature were modulated to obtain photocatalysts. ► Pure spinel was obtained after a treatment in NaOH of the samples calcined at 800°C. ► All the samples were active as photocatalysts for 2-propanol degradation. ► Photocatalytic activity increased with Zn amount and calcination temperature.



Wladimir Suprun, Michal Lutecki, Roger Gläser, Helmut Papp

Journal of Molecular Catalysis A: Chemical 342–343 (2011) 91

Catalytic activity of bifunctional transition metal oxide containing phosphated alumina catalysts in the dehydration of glycerol

► The total acidity of the catalysts influences the performance. ► WO_x and MoO_x containing catalysts exhibit a high selectivity for acrolein. ► WO_x , MoO_x and $CuO-Al_2O_3-PO_4$ catalysts are stable under reaction conditions. ► Transition metal oxides support a self regeneration of catalysts.

