

## Contents

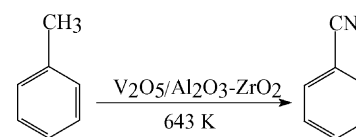
### Articles

**Komandur V.R. Chary, Chinthala Praveen Kumar, Dhachapally Naresh, Thallada Bhaskar, Yusaku Sakata**

*Journal of Molecular Catalysis A: Chemical 243 (2006) 149*

Characterization and reactivity of  $\text{Al}_2\text{O}_3\text{-ZrO}_2$  supported vanadium oxide catalysts

The  $\text{Al}_2\text{O}_3\text{-ZrO}_2$  mixed oxide is an interesting mixed oxide support to investigate the dispersion of vanadia and catalytic properties. Vanadium oxide supported on  $\text{Al}_2\text{O}_3\text{-ZrO}_2$  catalysts are found to be highly active and selective for the vapor phase ammoxidation of toluene to benzonitrile. This paper provides information on the surface species determined by various characterization techniques like oxygen chemisorption, ESR, XPS, TPR and UVDRS.

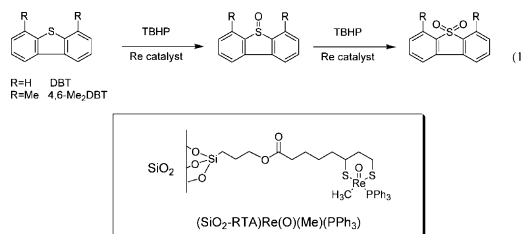


**Keith J. Stanger, Jerzy W. Wiench, Marek Pruski, James H. Espenson, George A. Kraus, Robert J. Angelici**

*Journal of Molecular Catalysis A: Chemical 243 (2006) 158*

Catalytic oxidation of a thioether and dibenzothiophenes using an oxorhenium(V) dithiolate complex tethered on silica

The oxorhenium(V) dithiolate catalyst  $[\text{S}(\text{CH}_2)_3\text{S}]\text{Re}(\text{O})(\text{Me})(\text{PPh}_3)$  tethered to silica was characterized by  $^{13}\text{C}$  and  $^{31}\text{P}$  CPMAS NMR spectroscopy and shown to catalyze the oxidation of methyl(*p*-tolyl)sulfide and dibenzothiophenes to their sulfoxides and sulfones at rates that are slightly slower than those of its homogeneous analog. The immobilized catalyst, however, offers the additional advantages of recyclability, extended stability and increased resistance to deactivation over the homogeneous catalyst.

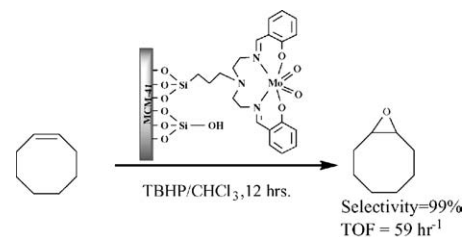


**M. Masteri-Farahani, F. Farzaneh, M. Ghandi**

*Journal of Molecular Catalysis A: Chemical 243 (2006) 170*

Synthesis and characterization of a new epoxidation catalyst by grafting *cis*- $\text{MoO}_2(\text{salpr})$  complex to functionalized MCM-41

Incorporation of a salpr schiff base ligand within the large pores of mesoporous material MCM-41 and subsequent treatment with  $\text{MoO}_2(\text{acac})_2$  affords a new truly heterogeneous molybdenum catalyst for successful epoxidation of cyclooctene, cyclohexene, 1-octene and 1-hexene with TBHP with high selectivities, turnover frequencies, and stability.

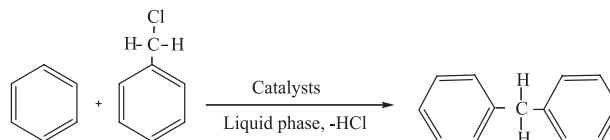


**M. Selvaraj, T.G. Lee**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 176

Room temperature synthesis of diphenylmethane over novel mesoporous Lewis acid catalysts

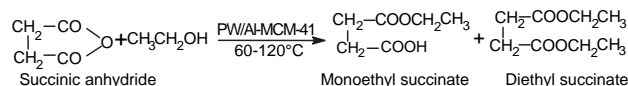
The mesoporous molecular sieves Al-MCM-41 and  $\text{SO}_4^{2-}/\text{Al-MCM-41}$  with different Si/Al=21, 42 and 83 were synthesized under hydrothermal and impregnation conditions, respectively, using cetyltrimethylammonium bromide surfactants as template in the absence of auxiliary organics. The mesoporous materials were characterized using several sophisticated instrumental techniques [M. Selvaraj, P.K. Sinha, K.S. Seshadri, A. Pandurangan, *Appl. Catal. A: Gen.*, 265 (2004) 75]. The materials have been used as catalyst for synthesis of diphenylmethane (DPM) using benzene and benzyl chloride (BC) in various optimal conditions. Further the catalytic results were compared with those obtained by using 0.8N sulfuric acid, different Si/Al ratios of Al-MCM-41, HY, H $\beta$ , HM and H-ZSM-5 zeolites. The recyclable  $\text{SO}_4^{2-}/\text{Al-MCM-41(21)}$  catalyst exclusively forms the product DPM and has much higher yields than other solid acid catalysts.

**K. Usha Nandhini, Banumathi Arabindoo, M. Palanichamy, V. Murugesan**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 183

Al-MCM-41 supported phosphotungstic acid: Application to symmetrical and unsymmetrical ring opening of succinic anhydride

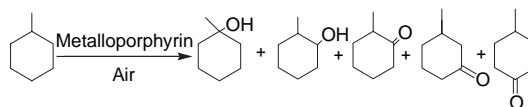
Al-MCM-41 supported phosphotungstic acid (10, 20 and 40–wt% PW/Al-MCM-41) catalysts were synthesized, characterized and their catalytic activities were evaluated in the esterification of succinic anhydride with ethanol. Monoethyl succinate and diethyl succinate were obtained as products. Unsymmetrical alcoholysis of succinic anhydride with ethanol in the first step and second alcoholysis with methanol and 1-butanol, respectively, yielded methyl ethyl succinate and butyl ethyl succinate as heteroesters.

**Ke-Wen Xu, Jin-Yong Ma, Quan Jiang, Hai-Yang Hu, Can-Cheng Guo**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 194

Selective catalysis of manganeseporphyrins on aerobic oxidation of different carbon–hydrogen bonds of methyl cyclohexane

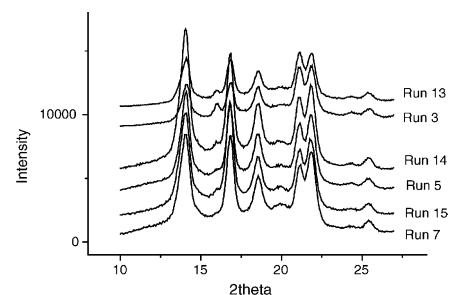
Manganeseporphyrins are effective selective catalysts for the aerobic oxidation of C–H bonds of methyl cyclohexane. The peripheral substituents of metalloporphyrins and the reaction conditions effect the catalytic selectivity. The increase of reaction temperature and pressure is benefited to selective oxidation of secondary C–H bonds, the electron-contributing substituents on porphyrin rings assist the selective oxidation of the secondary C–H bonds, while the electron-withdrawing substituents are favorable to selective oxidation of the tertiary C–H bonds.

**Chifeng Zhong, Mingzhi Gao, Bingquan Mao**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 198

Influence of “TMA-depleted” MAO and alkylaluminums on propylene polymerization at high temperature with  $\text{TiCl}_4/\text{MgCl}_2$  catalysts

A study of the effect of “trimethylaluminium (TMA)-depleted” methylaluminoxane (MMAO) and alkylaluminums on propylene polymerization at high temperature in the use of a  $\text{TiCl}_4/\text{MgCl}_2$ /aromaticdiester-alkoxysilane catalyst has shown that, the catalyst showed a high proportions of isotactic polypropylene (95%) and high activity when the mixture of MMAO and  $\text{Et}_3\text{Al}$  was used as cocatalyst at 100°C. The appearance of b modification in the isotactic polypropylene (iPP) obtained with  $\text{Et}_3\text{Al}$  crystallization process implied that the microstructure of iPP obtained with  $\text{Et}_3\text{Al}$  was different from that of iPP obtained with *i*- $\text{Bu}_3\text{Al}$  and  $\text{Hex}_3\text{Al}$  at 100°C.

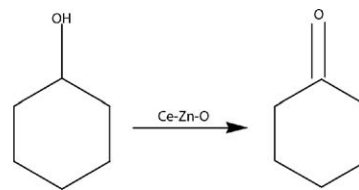


**Braja Gopal Mishra, G. Ranga Rao**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 204

Promoting effect of ceria on the physicochemical and catalytic properties of CeO<sub>2</sub>-ZnO composite oxide catalysts

The activities of CeO<sub>2</sub>-ZnO composite catalysts prepared by amorphous citrate method are reported for cyclohexanol dehydrogenation and hydrogen transfer reactions in vapour phase. CeO<sub>2</sub> in ZnO promotes cyclohexanol conversion with >90% selectivity to cyclohexanone. The Ce<sup>4+</sup> Lewis acidic sites in CeO<sub>2</sub>-ZnO catalysts enhance the cyclohexanone selectivity. Hydrogen transfer reaction of cyclohexanone using 2-propanol as hydrogen donor produces cyclohexanol with selectivity >98%. The acid-base properties of CeO<sub>2</sub>-ZnO are the key factors for higher activities and selectivities which are influenced by the dispersion of CeO<sub>2</sub> phase.

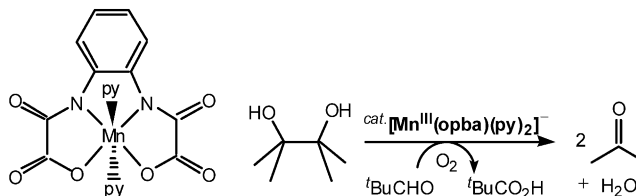


**Santiago Barroso, Gonzalo Blay, Isabel Fernández, José R. Pedro, Rafael Ruiz-García, Emilio Pardo, Francesc Lloret, M. Carmen Muñoz**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 214

Chemistry and reactivity of mononuclear manganese oxamate complexes: Oxidative carbon-carbon bond cleavage of *vic*-diols by dioxygen and aldehydes catalyzed by a *trans*-dipyridine manganese(III) complex with a tetradentate *o*-phenylenedioxamate ligand

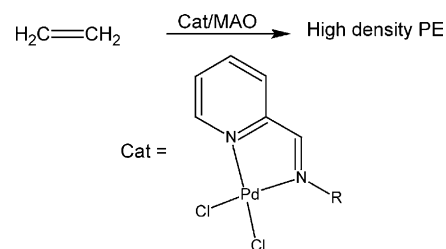
The new *trans*-dipyridine adduct of the mononuclear manganese(III) complex with the ligand *o*-phenylenebis(oxamate) (opba) is a highly effective and moderately selective catalyst for the oxidative cleavage of *vic*-diols to aldehydes or ketones by dioxygen with co-oxidation of pivalaldehyde to pivalic acid.

**Jezreel Cloete, Selwyn F. Mapolie**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 221

Functionalized pyridinyl-imine complexes of palladium as catalyst precursors for ethylene polymerization

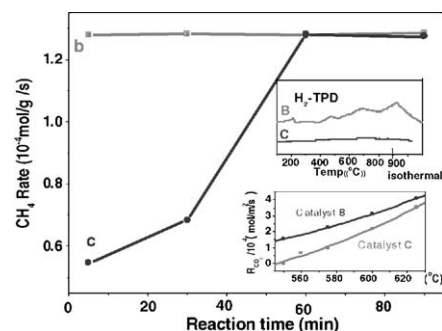
Mononuclear pyridinyl-imine complexes of palladium containing functionalities attached to the alkyl or aromatic group bonded to the imino nitrogen, when activated with MAO yield active catalysts for ethylene polymerization..

**Yuehua Cui, Hengyong Xu, Qingjie Ge, Wenzhao Li**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 226

Kinetic study on the CH<sub>4</sub>/CO<sub>2</sub> reforming reaction: Ni-H in Ni/α-Al<sub>2</sub>O<sub>3</sub> catalysts greatly improves the initial activity

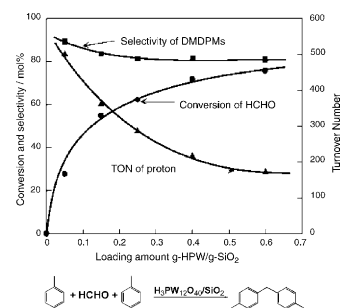
Ni-H in Ni/α-Al<sub>2</sub>O<sub>3</sub> (B) confirmed by H<sub>2</sub>-TPD shows a higher initial rate of CH<sub>4</sub>/CO<sub>2</sub> reforming reaction involving higher CO<sub>2</sub> rate for the pulse of CO<sub>2</sub> after CH<sub>4</sub> pulse. The rate of Ni/α-Al<sub>2</sub>O<sub>3</sub> without Ni-H (C) finally reaches a constant value due to the in situ formation of Ni-H. It bridges the hydrogen storage metal and catalytic activity of CH<sub>4</sub>/CO<sub>2</sub> reforming reaction.



**Dingfeng Jin, Zhaoyin Hou, Yongming Luo,  
Xiaoming Zheng**

*Journal of Molecular Catalysis A: Chemical* 243  
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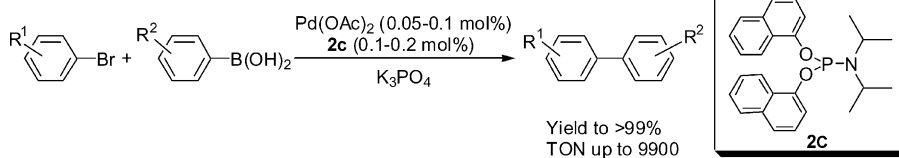
Synthesis of dimethyldiphenylmethane over supported 12-tungstophosphoric acid ( $H_3PW_{12}O_{40}$ )



**Zhanjin Zhang, Jincheng Mao, Rongliang Wang,  
Fan Wu, Huilin Chen, Boshun Wan**

*Journal of Molecular Catalysis A: Chemical* 243  
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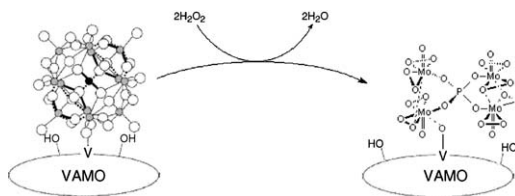
A highly active palladium-phosphoramidite catalyst for the Suzuki cross-coupling of aryl bromides



**Haresh G. Manyar, Ganesh S. Chaure,  
Ashok Kumar**

*Journal of Molecular Catalysis A: Chemical* 243  
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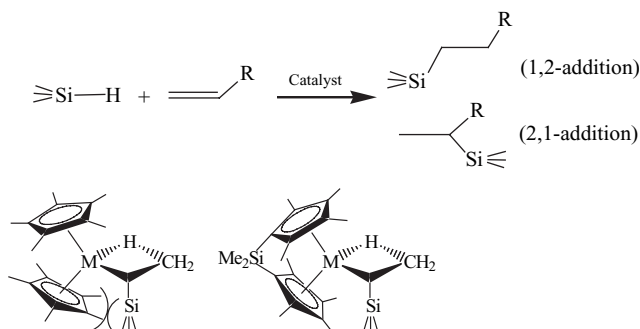
Supported polyperoxometallates: Highly selective catalyst for oxidation of alcohols to aldehydes



**Peng-Fei Fu**

*Journal of Molecular Catalysis A: Chemical* 243  
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Formation of branched silanes via regioselective hydrosilylation of vinylsilanes

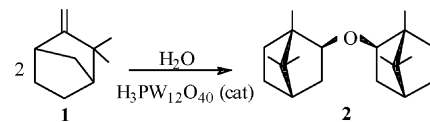


**Enio José Leão Lana, Kelly A. da Silva Rocha, Ivan V. Kozhevnikov, Elena V. Gusevskaya**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 258

One-pot synthesis of diisobornyl ether from camphene using heteropoly acid catalysts

A novel one-pot catalytic synthesis of diisobornyl ether directly from camphene (1) has been developed. The reaction occurs under near ambient conditions in the presence of dissolved or silica-supported heteropoly acid  $H_3PW_{12}O_{40}$  (PW) as a catalyst to give diisobornyl ether (2) with up to 90% selectivity at 50–60% conversion.

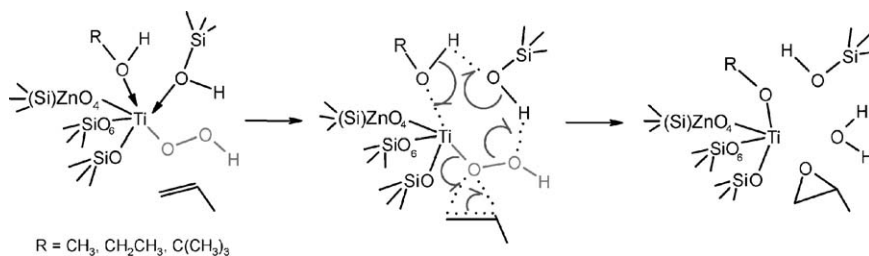


**V. Arca, A. Boscolo Boscoletto, N. Fracasso, L. Meda, G. Ranghino**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 264

Epoxidation of propylene on Zn-treated TS-1 catalyst

Direct  $H_2O_2$  propylene epoxidation reaction in alcoholic–aqueous medium on Zn-treated TS-1 catalyst has disclosed a specific zinc framework coordination that enhances the Ti-site epoxide selectivity. It has proposed a reaction cyclic intermediate in which a hydroperoxide oxygen abstraction by double bond is promoted by a concerted electronic rearrangement and protonic transfer involving a local silanol and alcoholic groups to form water and propylene oxide.



**Ganapati D. Yadav, Neesha M. Desai**

*Journal of Molecular Catalysis A: Chemical* 243 (2006) 278

Phase transfer catalysed alkylation of 2'-hydroxy acetophenone with 1-bromopentane: Kinetics and mechanism of liquid–liquid reaction

The mechanism and kinetics of selective synthesis of 2'-pentyloxyacetophenone using liquid–liquid phase transfer catalysis is discussed.

