



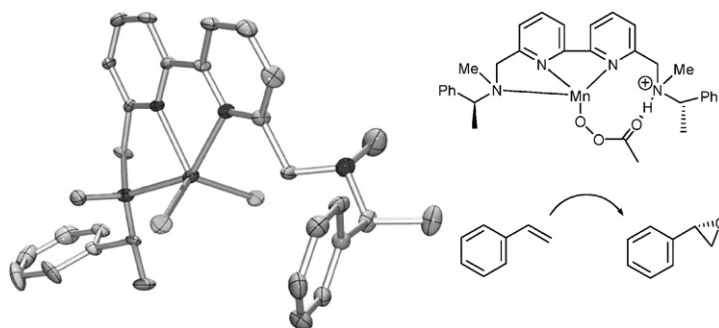
Contents

Articles

Gennadiy Ilyashenko, David Sale, Majid Motevalli, Michael Watkinson

Journal of Molecular Catalysis A: Chemical 296 (2008) 1

A preliminary investigation into a rationally designed catalytic system for the epoxidation of alkenes based on a bipyridyl core

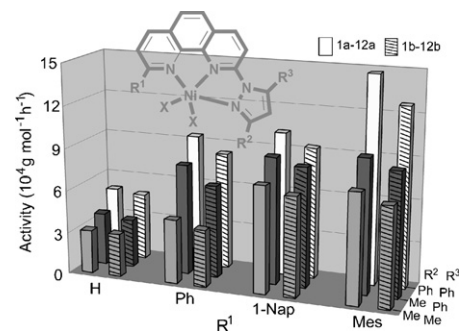


Yue Yang, Peiju Yang, Cui Zhang, Gang Li, Xiao-Juan Yang, Biao Wu, Christoph Janiak

Journal of Molecular Catalysis A: Chemical 296 (2008) 9

Synthesis, structure, and catalytic ethylene oligomerization of nickel complexes bearing 2-pyrazolyl substituted 1,10-phenanthroline ligands

A series of nickel(II) complexes bearing 2-pyrazole substituted 1,10-phenanthroline ligands have been synthesized, which show good catalytic activities for ethylene oligomerization upon activation with methylaluminoxane (MAO). The effects of the coordination environment and reaction conditions on the catalytic behavior have been discussed.

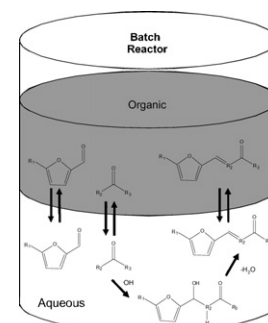


Ryan M. West, Zhen Y. Liu, Maximilian Peter, Christian A. Gärtner, James A. Dumesic

Journal of Molecular Catalysis A: Chemical 296 (2008) 18

Carbon–carbon bond formation for biomass-derived furfurals and ketones by aldol condensation in a biphasic system

Aldol condensation as a catalytic route for carbon–carbon bond coupling was investigated between various furfurals and ketones derived from biomass in a biphasic system. The effect of reagent ratios and reaction conditions on the final product distribution was investigated and a simple kinetic model was used to gain insight into the reaction network.



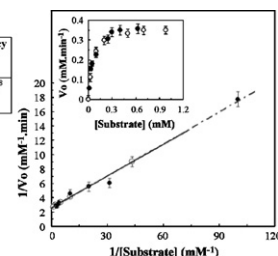
B. Mohajerani, M. Soleymani-Jamarani, K. Nazari, A. Mahmoudi, A.A. Moosavi-Movahedi

Journal of Molecular Catalysis A: Chemical 296 (2008) 28

Microperoxidase-11-NH₂-FSM16 biocatalyst: A heterogeneous enzyme model for peroxidative reactions

Nanobiocatalysts consisting of hemin, microperoxidase-11 and peroxidase were obtained by immobilization of biocatalysts on amine-modified FSM16. Performances of these peroxidase models examined by peroxidatic and biotransformation reactions. Results showed that MP-11/NH₂-FSM16 mimics HRP ($K_m \sim 55.45 \pm 1.29 \mu\text{M}$ for ABTS and guaiacol), meaning that these heterogeneous models with high catalytic efficiencies ($10^8 \text{ M}^{-1} \text{ min}^{-1}$) are applicable for oxidation and peroxidative conversion of aromatic substrates.

Enzymatic Parameter	K_m (μM)	V_{max} ($\text{mM} \cdot \text{min}^{-1}$)	K_{cat} ($\text{mol S} \cdot \text{mol MP-11} \cdot \text{sec}^{-1}$)	Catalytic Efficiency ($\text{M}^{-1} \cdot \text{min}^{-1}$)
ABTS & Guaiacol	55.45 ± 1.29	0.3811 ± 0.02363	6352.50 ± 158.81	$(1.45 \pm 0.0297) \cdot 10^8$

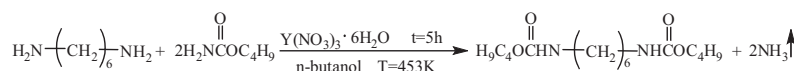


Hongzhe Zhang, Xiaoguang Guo, Qinghua Zhang, Yubo Ma, Hancheng Zhou, Jian Li, Ligu Wang, Youquan Deng

Journal of Molecular Catalysis A: Chemical 296 (2008) 36

Synthesis of dialkyl hexamethylenedicarbamate from 1,6-hexamethylenediamine and alkyl carbamate over $\text{Y}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ catalyst

At 453 K and in *n*-butanol, non-phosgene synthesis of dibutyl hexamethylenedicarbamate (BHDC) from butyl carbamate could be achieved with nearly 100% conversion of 1,6-hexamethylenediamine and 85% isolated yield of BHDC over $\text{Y}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ catalyst. During reaction, an induction period for the catalyst was observed, the FT-IR, XRD and XPS analysis verified that some transformations for the catalyst occurred during the reaction.

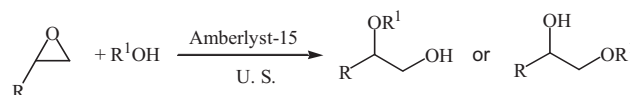


Yu-Heng Liu, Qiu-Shuang Liu, Zhan-Hui Zhang

Journal of Molecular Catalysis A: Chemical 296 (2008) 42

Amberlyst-15 as a new and reusable catalyst for regioselective ring-opening reactions of epoxides to β -alkoxy alcohols

Amberlyst-15 serves as an inexpensive, effective, and environmental friendly heterogeneous catalyst for the regioselective ring-opening of epoxides by primary, secondary and tertiary alcohols, resulted in the formation of β -alkoxy alcohols in 40–95% yields under ultrasound irradiation.

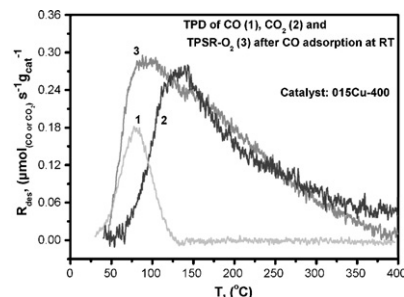


George Avgouropoulos, Theophilos Ioannides

Journal of Molecular Catalysis A: Chemical 296 (2008) 47

TPD and TPSR study of CO interaction with CuO–CeO₂ catalysts

The interaction of CO and CO₂ with CuO–CeO₂ catalysts has been studied employing the techniques of temperature-programmed desorption (TPD) and temperature-programmed surface reaction (TPSR). Catalytic sites, which form strongly bound carbonates during interaction with CO, get eliminated with increase of activation temperature and do not contribute to the steady-state activity. Ceria is related with the stabilization of highly dispersed copper species and creation of additional sites for CO adsorption and reaction.

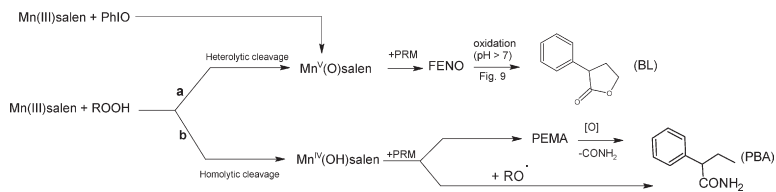


**T.C.O. Mac Leod, A.L. Faria, V.P. Barros,
M.E.C. Queiroz, M.D. Assis**

Journal of Molecular Catalysis A: Chemical 296 (2008) 54

Primidone oxidation catalyzed by metalloporphyrins and Jacobsen catalyst

Primidone (PRM) oxidation by various oxidants such as iodobenzene (PhIO), *tert*-butyl hydroperoxide 70 wt.% (*t*-BOOH), 3-chloroperoxybenzoic acid (*m*-CPBA) and hydrogen peroxide 30 wt.%, mediated by either a salen complex or metalloporphyrins, was investigated. The catalytic systems led to the same metabolites phenylethylmalondiamide (PEMA) and phenobarbital (FENO) obtained *in vivo* with P450 enzymes, although three other products were also detected.



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Raksh V. Jasra**

Journal of Molecular Catalysis A: Chemical 296 (2008) 61

HRh(CO)(PPh₃)₃ encapsulated mesopores of hexagonal mesoporous silica (HMS) acting as nanophase reactors for effective catalytic hydroformylation of olefins

The rhodium complex HRhCO(PPh₃)₃ encapsulated into the pores of hexagonal mesoporous silica (HMS) by in situ synthesis (Rh-HMS) was found to be an efficient heterogeneous catalyst for hydroformylation of C₅-C₁₂ olefins.

