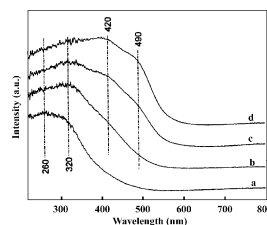


Vanadium Oxide Supported on Mesoporous SBA-15 as Highly Selective Catalysts in Oxidative Dehydrogenation of Ethylbenzene with Carbon Dioxide

XIANG Bin, YU Chang-lin,
XU Heng-yong, LI Wen-zhao

J. Mol. Catal. (China) **2008**, 22(4), 289 ~ 293

A series of vanadium oxide supported on mesoporous SBA-15 catalysts for oxidative dehydrogenation of ethylbenzene with carbon dioxide were prepared. The presence of broad bands centered at 260 and 320 nm in the diffuse reflectance UV vis spectra



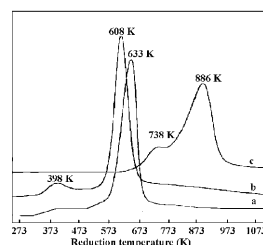
corresponding to isolated V sites in tetrahedral coordination and polymeric V O V species, respectively. As the vanadium content increases, bands centered at 420 nm and 490 appear for the samples with 20% and 30% V₂O₅ loading. These bands indicate the presence of "bulk-like" V₂O₅ crystallites due to a further polymerization of the V species.

The Effect of Pt, Pd Promoters on the Dispersion of Ni and the Ability to Coke Resistance of Ni-based Catalyst

GAO Qun-yang, LV Gong-xuan

J. Mol. Catal. (China) **2008**, 22(4), 294 ~ 301

The addition of Pt strongly enhances the catalytic activity, stability, the abilities to coke resistance and oxidation. The strong metal-metal interaction between Ni and Pt leads to an in-



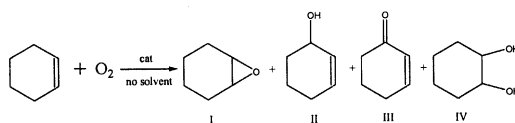
crease in the metallic dispersion, favoring the formation of small Ni particles on the surface of Ni-based catalysts, which in-turn inhibit the sintering of Ni and improve the ability to coke resistance.

Preparation, Characterization and Catalytic Oxidation of Co Supported Attapulgite Catalysts

ZHANG Yan, LI Zhen,
SUN Wei, XIA Chun-gu

J. Mol. Catal. (China) **2008**, 22(4), 302 ~ 307

A series of Co-AT catalysts prepared by wetness impregna-



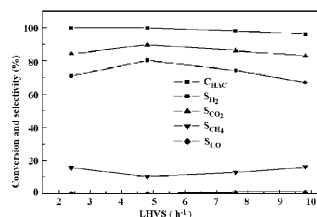
tion gave rise to high catalytic activity in liquid-phase Oxidation of Cyclohexene. Detailed characterization indicated that there existed interaction between Co and support, which lead to formation of spinel of CoAl₂O₄ and CoFe₂O₄. Catalytic testing suggested that the oxidation activity could be mainly attributed to the presence of CoFe₂O₄ rather than CoAl₂O₄.

Hydrogen Production by Catalytic Steam Reforming of Acetic Acid over Co-Ni/SiO₂

MA Chong-hua, HU Xun, LU Gong-xuan

J. Mol. Catal. (China) **2008**, 22(4), 308 ~ 314

A series of Co-Ni/SiO₂ catalysts were prepared by impregnation methods for steam reforming of acetic acid to hydrogen. The results showed: the catalyst Co-Ni/SiO₂ with Co:Ni molar



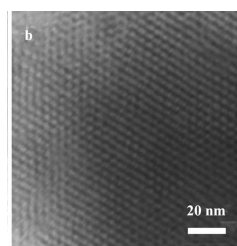
ratios of 0.5: 1, loaded weight 15% was superior in the series catalysts. At the conditions of S/C = 7.5: 1 and t > 500°C, catalyst showed the best performances, acetic acid could be converted completely with the selectivity of 95% toward H₂ and CO₂.

Facile Synthesis of Stable Mesoporous Silica MCM-41 Via a Dual Templating of CMC and CTAB

ZHANG Lei, YAN Zi-feng,
QIAO Shi-zhang, LU Gao-qing(Max)

J. Mol. Catal. (China) **2008**,22(4), 315 ~ 319

Highly ordered mesoporous molecular sieve MCM-41 with



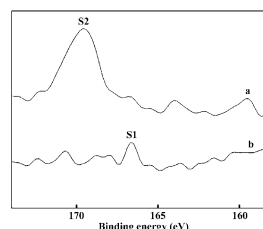
hexagonal structures and enhanced stability has been successfully synthesized via a dual templating of carboxymethyl cellulose (CMC) and cetyltrimethylammonium bromide (CTAB).

Research on the Poison Resistance and Stabilization of the Perovskite Catalysts for VOCs Catalytic Combustion

SHEN Liu-qian, WENG Fang-lei,
YUAN Peng-jun, HUANG Hai-feng

J. Mol. Catal. (China) **2008**,22(4), 320 ~ 324

$\text{La}_{0.8}\text{Cu}_{0.2}\text{MnO}_3$ and $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ perovskite catalysts had good chlorine resistance and stabilization, but would get poi-



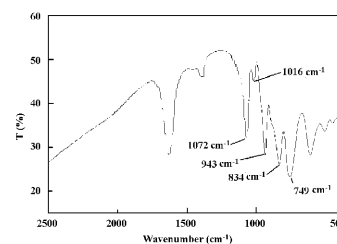
soned at the presence of SO_2 . XRD and XPS techniques were employed to found that the deactivation of the catalysts under SO_2 is due to the forming of CuSO_4 and SrSO_4 on the surface of the catalysts.

The Catalytic Behaviors of Lacunary Dawson-type $\text{K}_{10}\text{Na}_2\text{H}_2\text{P}_2\text{W}_{16}\text{O}_{60}$ in Oxidation of Cyclohexene

LI Jia-qi, YIN Du-lin, XIAO Yi,
MAO Li-qiu, JIANG Tai-wei,
LONG Yu-lin

J. Mol. Catal. (China) **2008**,22(4), 325 ~ 329

The dilacunary heteropoly compound $\text{K}_{10}\text{Na}_2\text{H}_2\text{P}_2\text{W}_{16}\text{O}_{60}$ was synthesized and characterized by IR, UV-vis, XRD and



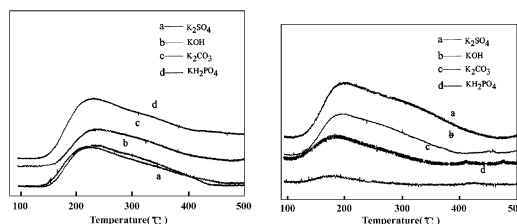
TG. The influences of solvent and reaction temperature on the oxidation of cyclohexene catalyzed by the heteropoly compound with hydrogen peroxide as oxidant were remarkable. The catalyst could be easily isolated from the system by controlling the temperature and be recycle using.

Influence of Promoters on the Performance of $\text{Pt}/\gamma\text{-Al}_2\text{O}_3$ Catalysts for Synthesizing O-phenylphenol

LUO Tao, WANG Ji-dong, QU Yi-xin

J. Mol. Catal. (China) **2008**,22(4), 330 ~ 335

In order to research the influence of the different promoters on the synthesis of o-phenylphenol (OPP) from the dehydrogen-

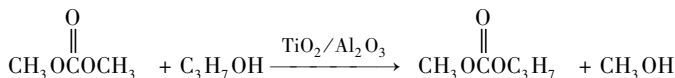


ation of Dimer derived from the condensation of cyclohexanone, NH_3 -TPD and CO_2 -TPD of the catalysts with different K-salts as promoters is used to characterize and the type and the amount of the acidic and site on the catalyst surface.

Effect of $\text{TiO}_2/\text{Al}_2\text{O}_3$ Loadings on Synthesis of Methyl Propyl Carbonate by Gas-phase Transesterification

ZHAO Chun-xiang, DING Yong-jie, ZHAO Tian-sheng

J. Mol. Catal. (China) **2008**, 22(4), 336 ~ 340



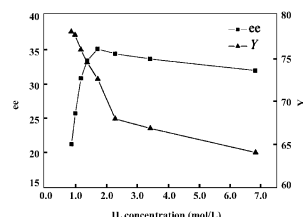
Al_2O_3 with appropriate loading of TiO_2 functions is an effective solid catalyst for the synthesis of methyl propyl carbonate via the gas-phase mono-transesterification of dimethyl carbonate and propanol.

Enzyme-Catalyzed Enantioselective Hydrolysis of Ethyl Mandelate in Ionic Liquids

WANG Yao, GAO Jing,
ZHOU Li-ya, WANG Hai-ou,
HE Ying, LU Ke

J. Mol. Catal. (China) **2008**, 22(4), 341 ~ 345

Enantioselective hydrolysis of ethyl mandelate was studied by

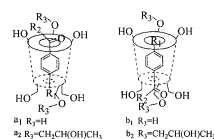
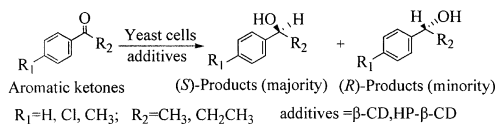


using kinds of enzymes in ionic liquids. N435 exhibited excellent activity and enantioselectivity in the system containing [BMIM]Br compared to several other enzymes and ionic liquids tested.

Asymmetric Reduction of Aromatic Ketones by Yeast Cells Catalyzed in the Presence of Cyclodextrins

ZHANG Wen-hu, LIU Xiang, FANG Yun, FANG Zhi-jie, XU Jian-he

J. Mol. Catal. (China) **2008**, 22(4), 346 ~ 350



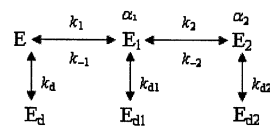
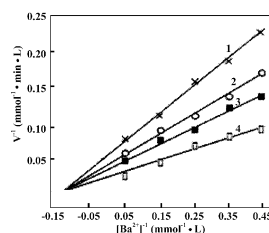
The Asymmetric reduction of aromatic ketones was catalyzed by yeast cells in the presence of additives (β -cyclodextrin and hydroxypropyl- β -cyclodextrin). The effect of additives on asymmetric reduction of aromatic ketones show that the conversion rate and the enantiomeric excess value were markedly affected by both steric effect and electronic effect of p-substituted group of the substrate aromatic cycle. The reaction results were affected by cyclodextrins through enhancing the catalytic efficiency of yeast fermentation broth and inclusion with the substrate.

Catalytic Kinetics and Inactivation Kinetics of an Esterase BSE-1 from Marine *Bacillus* sp.

GAO Qiang, HAO Jian-hua,
WANG Yue-jun, YU Jian-sheng,
SUN Mi

J. Mol. Catal. (China) **2008**, 22(4), 351 ~ 355

The catalytic kinetics and thermal inactivation kinetics of a



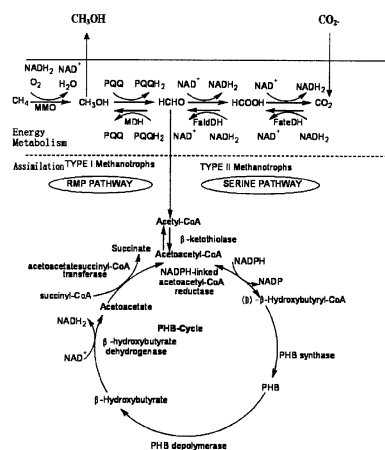
novel alkaline esterase BSE-1 were studied after it was purified from a marine *Bacillus* sp.. The metal ion inhibitory type of BSE-1 was studied further (Fig. 1) and its inactivation model was set up (Fig. 2).

Methanol Production from CO₂ by Resting Cells of *Methylosinus trichosporium* IMV 3011

XIN Jia-ying, CAI Yan-song,
WANG Yan, ZHANG Ying-xin,
XIA Chun-gu

J. Mol. Catal. (China) **2008**, 22(4), 356 ~ 361

Methanol production from carbon dioxide was catalyzed by resting cells of *Methylosinus trichosporium* IMV 3011. It has been found that the catabolism of stored Poly- β -Hydroxybutyrate (PHB) can provide intracellular reducing equivalents to improve



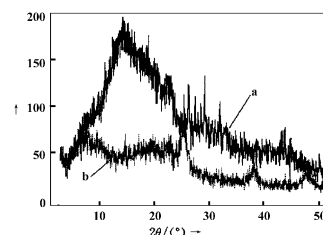
the methanol production capacity.

Microwave Assisted Preparation of Nano-sized TiO₂/PMMA Composite Material in Ionic Liquid and Its Photo-catalytic Capability

YANG Yan-qiong, WANG Zhao,
BI Xian-jun

J. Mol. Catal. (China) **2008**, 22(4), 362 ~ 367

With the [Bmim]BF₄ as reactive medium, TiO₂/PMMA composite materials were prepared by microwave irradiating, and characterized by XRD, IR, TG. With methyl orange as degrada-



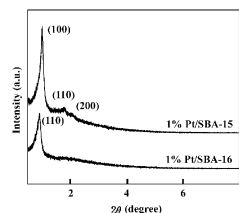
tion agent and ultraviolet lamp as light source, the photo-catalytic capability of TiO₂/PMMA was tested. The result indicated that the photo-catalysis activity of the TiO₂/PMMA had been obviously improved when nano-sized TiO₂ loaded with the PMMA as support.

Synthesis, Characterization of Pt/SBA-15 and Pt/SBA-16 Catalysts and Their Methane Catalytic Combustion Performances

LU Ze-xiang, WU Ping-yi, JI Sheng-fu,
LIU Hui, LI Cheng-yue

J. Mol. Catal. (China) **2008**, 22(4), 368 ~ 373

Pt/SBA-15 and Pt/SBA-16 with Pt content approximating to 1% were hydrothermally synthesized using $\text{Na}_2\text{SiO}_3 \cdot 9\text{H}_2\text{O}$ as



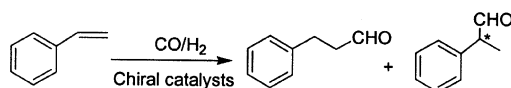
the silica source and H_2PtCl_6 as the platinum source, and characterized by means of XRF, XRD, HRTEM and N_2 adsorption-desorption isotherms. The performances of the samples in the methane catalytic combustion were evaluated.

Recent Progress of Asymmetric Carbonylation of α -olefins

CUI Yu-ming, ZHAO Shui-xia,
WANG Lai-lai

J. Mol. Catal. (China) **2008**, 22(4), 374 ~ 378

The asymmetric carbonylation of α -olefins are useful methods for the preparation of optically active compounds, which

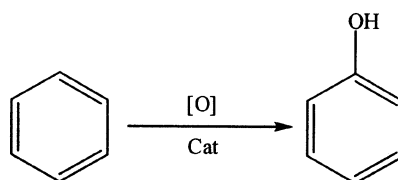


are important intermediates for synthesizing biologically active compounds and new materials such as biodegradable polymers, piezo-, pyro-, and ferro-electric material, nonlinear optical material, chromatographic supports, and liquid crystals. The recent progress of asymmetric mono-, bi-, and tri-carbonylation of α -olefins in recent years is reviewed in this paper.

Research Progress on Direct Catalytic Oxidation of Benzene to Phenol

GAO Xiao-han, LV Xue-chuan,
XU Jie

J. Mol. Catal. (China) **2008**, 22(4), 379 ~ 384



challenge object, a great significance in science and a potential application in industry. The methods and developmental direction about the reaction are reviewed.

The direct catalytic oxidation of benzene to phenol is a chal-