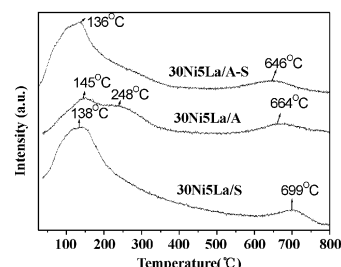


Hydrogen production for fuel cell via ethanol steam reforming reaction over Ni-La catalysts

ZHANG Li-feng, WANG Yi-ping,
HUANG Qun-wu

J. Mol. Catal. (China) **2008**, 22(5), 385 ~ 391

Ni-La catalysts supported on γ - Al_2O_3 , SiO_2 and $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ were prepared using deposition-precipitation methods. These Ni-La catalysts were characterized by XRD, TPR, XPS, H_2 -TPD, NH_3 -TPD and TG, and used for the hydrogen production



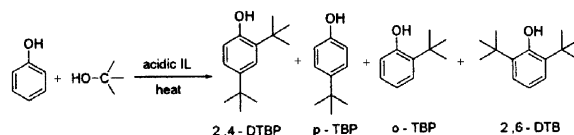
via ethanol steam reforming reaction. The results show that these catalysts had higher Ni metal dispersion degree, and Ni-La catalyst supported on $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ had good long-term stability.

Selective Alkylation of Phenol with Tert-butyl Alcohol Catalyzed by Morpholine-based Task Specific Acidic Ionic Liquids

LIU Xiao-fei, CHEN Jing, XIA Chun-gu

J. Mol. Catal. (China) **2008**, 22(5), 392 ~ 397

A mild, efficient, and eco-friendly procedure of alkylation reaction of phenol with tert-butyl alcohol (TBA) catalyzed by



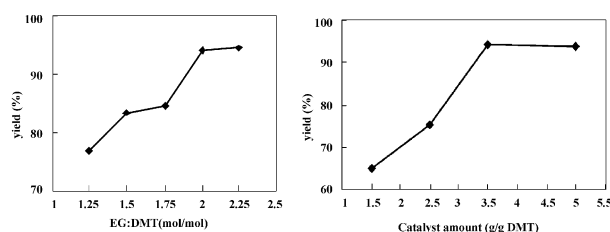
morpholine-based acidic ionic liquids has been investigated. The conversion of phenol and the selectivity of 2,4-DTBP were 92.4% and 64.1%, respectively, under optimum reaction condition, and the ILs could be reused.

Polymerization of Dimethyl terephthalate and Ethylene glycol Using Functional Ionic liquids as Catalyst

Song Hao, Hu Xiao-xue, Liu Jia-mei, Xia Chun-gu (398)

J. Mol. Catal. (China) **2008**, 22(5), 398 ~ 402

Poly ethylene terephthalate (PET) was synthesized by means of catalysis of ionic liquids in solvent-free system, using dimethyl terephthalate (DMT) and ethylene glycol (EG) as



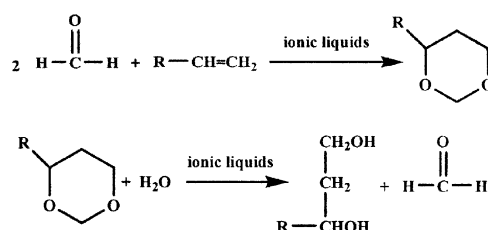
material. The effect of the material proportion, the reaction temperature and the catalyst dosage was studied. And the possible reaction process was presumed in the study.

Prins Condensation of Formaldehyde with Alkene using Functional Acid Ionic Liquid as Catalyst

SONG He-yuan, TANG Zhong-hua, CHEN Jing

J. Mol. Catal. (China) **2008**, 22(5), 403 ~ 407

Functional acid ionic liquids catalyzed Prins condensation of formaldehyde with alkene for synthesis of 1,3-dioxane and its derivatives. High conversion and excellent selectivity were



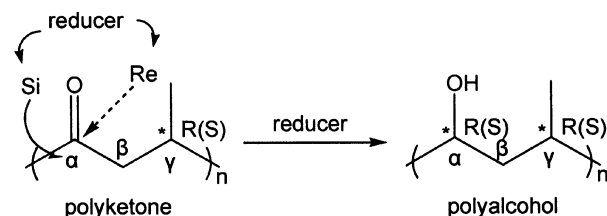
obtained under mild reaction conditions. The Brønsted acidity of ionic liquids was evaluated from the determination of the Hammett acidity functions, using UV-Visible spectroscopy.

Synthesis of Novel Chiral Polyalcohol by Reducing Propene-CO Alternating Copolymer

JIA Xiao-jing, CUI Yu-ming, WANG Lai-lai

J. Mol. Catal. (China) **2008**, 22(5), 408 ~ 412

Pd(II)/P-PHOS(S) complex catalyzed propene and CO alternating copolymerization to produce chiral polyketones, which



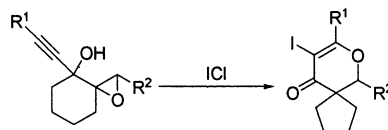
were reduced by four reducers: LiAlH_4 , NaBH_4 , BH_3 THF and Pd/C hydrogenation.

Study on Electrophile Induced Semi-pinacol Rearrangement Reaction

WEN Shu-guang, LIANG Yong-min

J. Mol. Catal. (China) **2008**, 22(5), 413 ~ 417

An efficient approach for the synthesis of 2, 3-dihydro-5-iodopyran-4-one was developed and this reaction was believed



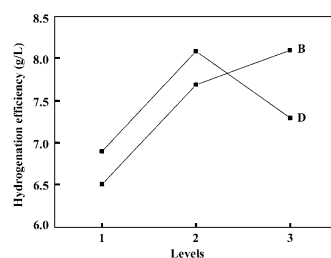
to contain a consecutive iodocyclization and a 1, 2-migration process. The iodine-containing products can be transformed to more complex compounds by the palladium-catalyzed cross-coupling reaction.

Orthogonal Experiment for Aluminum-Zirconium Composite Oxides Supported Palladium Catalyst on Hydrogenation of 2-Ethylanthraquinone

WANG Feng, XU Xian-lun

J. Mol. Catal. (China) **2008**, 22(5), 418 ~ 423

An Aluminum-Zirconium Composite Oxides Supported Palladium catalyst was prepared and characterized correspondingly.



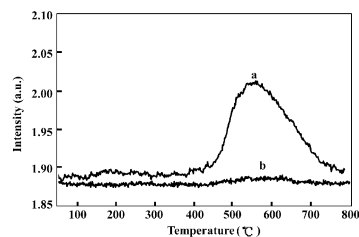
Design of experiments approach was employed to optimize the preparations of the catalyst. It showed high catalytic activity on hydrogenation of anthraquinone.

Preparations of C/SiC Composites and their Applications in Ammonia Synthesis

YU Xiu-jin, ZHENG Ying, ZHENG Yong,
WANG Rong, WEI Ke-mei

J. Mol. Catal. (China) **2008**, 22(5), 424 ~ 428

The results of TPD-MS spectra of catalysts in a H_2 stream showed that there was slight amount of methane formed when the Ru-C/SiC catalyst was tested for methanation reaction for the first



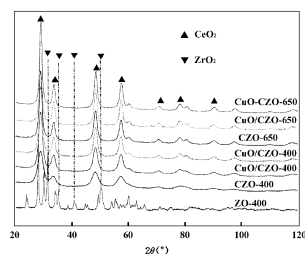
time (red line), while there was no methane could be detected for the second test (green line). This result indicated that the C/SiC support has a high performance for resistance to methanation.

Effect of Preparation Method on Catalytic Activity of CO Oxidation over $\text{CuO-Ce}_{0.7}\text{Zr}_{0.3}\text{O}_2$ Catalysts

HONG Qing-hong, SONG Yu-peng, JIA Ai-ping,
PU Zhi-ying, LUO Meng-fei

J. Mol. Catal. (China) **2008**,22(5), 429 ~ 433

The CO conversion of the catalysts is related to the oxygen vacancies. It is found that the catalyst with more oxygen



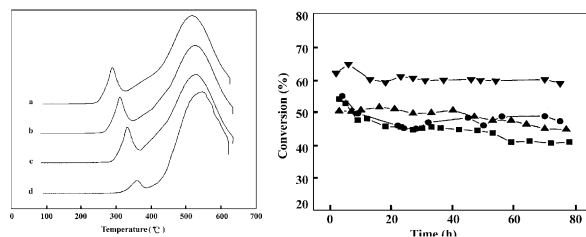
vacancies showed higher catalytic activity for CO oxidation.

Effect of Potassium Promoters on Catalytic Performance of Copper Aluminum Borate for Dehydrocyclization of *o*-Ethylaniline

ZHANG Ai-jun, WU Hong-li, CAO Fei,
GUO Cheng, WEI Ping

J. Mol. Catal. (China) **2008**,22(5), 434 ~ 438

In copper aluminum borate, the reductive temperature of copper oxides was increased by adding the potassium promoter



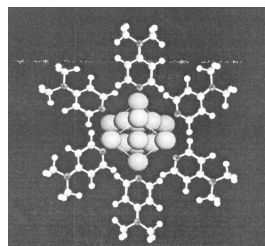
through the characterization of XRD and TPR. These change delayed the catalyst lifetime and the conversion of *o*-ethylaniline was maintained to 60% in 80 h.

Study on Preparation of Gold Cluster-Polyoxometalate Composite and Catalytic Performance for Selective Cyclohexene Oxidation

LI Ji-min, WANG Xiao-dong,
LI Feng-bo, YUAN Guo-qing

J. Mol. Catal. (China) **2008**,22(5), 439 ~ 442

Gold nanoparticles were prepared based on a hybrid compound of 4 - dimethylaminopyridine and polyoxometalate as



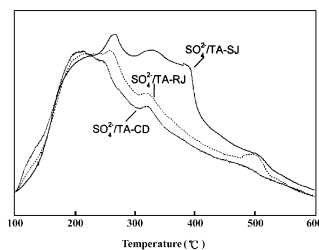
stabilizer, and their catalytic performance was evaluated. These nanoparticles show high activity and selectivity in catalyzing low-temperature oxidation.

Preparation of the Sulfated $\text{TiO}_2/\text{Al}_2\text{O}_3$ Catalyst and the Characterization of the Catalytic Property

LI Ning, WANG Peng

J. Mol. Catal. (China) **2008**,22(5), 443 ~ 448

Precipitation method, hydrolysis method, Sol-gel method were applied to prepare the nano- $\text{TiO}_2/\text{Al}_2\text{O}_3$ composite supports. The catalyst prepared by hydrolysis showed higher activity



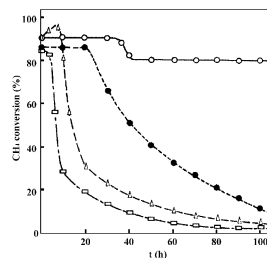
towards α -pinene isomerisation. α -pinene conversion was 82.76%.

Effects of Promoters-Modified γ - Al_2O_3 on Catalytic Performance of CoO/γ - Al_2O_3

DENG Cun

J. Mol. Catal. (China) **2008**, 22(5), 449 ~ 453

11.0% $\text{CoO}/(\text{CaO}-\gamma\text{-Al}_2\text{O}_3)$ catalyst exhibits optimal catalytic reaction stability, which is more stable in catalytic activity within 100 hours on stream with a CH_4/CO_2 feed ratio of 1:1 at



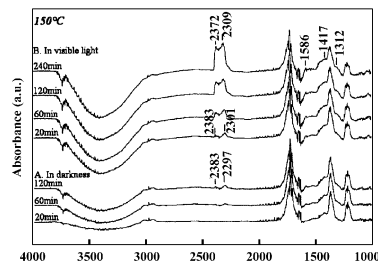
750 °C and GHSV equal to 2 500 h⁻¹.

An In-situ FTIR Investigation of Acetone Photodegradation

SONG Han, ZHOU Xiao-ping

J. Mol. Catal. (China) **2008**, 22(5), 454 ~ 460

The acetone photodegradation over $\text{Pt}/\text{V}_2\text{O}_5/\text{MgF}_2$ catalyst was investigated in the temperature region of 120 to 150 °C under visible lights. It was found that high reaction temperature favors the photodegradation of acetone. $\text{V}_2\text{O}_5/\text{MgF}_2$ and $\text{Pt}/\text{V}_2\text{O}_5/$



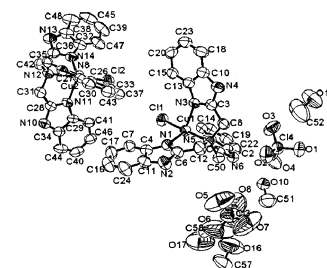
MgF_2 are found to be visible light active catalysts.

Synthesis, Crystal Structure and Polyphenol Oxidase Activities Study of $[\text{Cu}(\text{NTB})\text{Cl}]\text{ClO}_4 \cdot 2.5\text{CH}_3\text{OH}$

QIU Jiang-hua, WANG Guang-hui,
LIAO Zhan-ru, MENG Xiang-gao

J. Mol. Catal. (China) **2008**, 22(5), 461 ~ 465

A novel mononuclear complex $[\text{Cu}(\text{NTB})\text{Cl}]\text{ClO}_4 \cdot 2.5\text{CH}_3\text{OH}$ was synthesized and characterized by X-ray diffraction analysis. Polyphenol oxidase activities toward pyrogallol and catechol



catalyzed by the complex obey the Michaelis-Menten equation. It is apparent that pyrogallol oxidation is easier than catechol, and catalytic activities increase with increasing of pH values.

Advance in Nano-gold catalysts for Direct Epoxidation of Propylene in the Co-presence H_2 and O_2

LIU Yi-wu, YU Huan, ZHANG Xiao-ming,
LU Ji-qing, SUO Ji-shuan

J. Mol. Catal. (China) **2008**, 22(5), 466 ~ 472

The advances in the direct vapor-phase oxidation of propylene to propylene oxide in the presence of molecular hydrogen and oxygen are reviewed by classification of supports, and the reaction mechanism and kinetics are also discussed.

Progress on Dynamic Kinetic Resolution in Preparing Chiral Compounds

DU Zhi-qiang, WANG An-ming, WANG Hua, ZHOU Cheng,
YANG Ming, ZHANG Jun, ZHU Du-min, SHEN Shu-bao

J. Mol. Catal. (China) **2008**, 22(5), 473 ~ 480

The paper reviews the progress of dynamic kinetic resolution (DKR) (Figure 1). The process of DKR are mainly Introduced from two aspects divided by the methods of racemization (Figure 2): the first of which is racemized by transitional-metal, and the second is catalysed by racemase. Finally, the prospects of research and application of Dynamic kinetic resolution (DKR) are also forecasted.

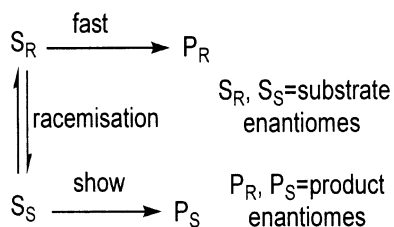


Figure 1. Dynamic kinetic resolution

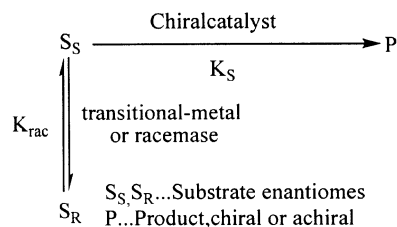


Figure 2. The methods of racemization in Dynamic kinetic resolution