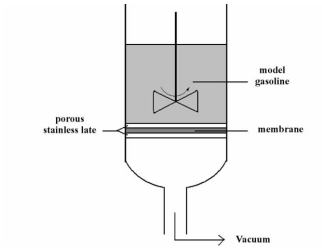
Preliminary Exploration of Polyvinyl Alcohol/Ionic Liquids Hybrid Membrane in Desulfurization of Model Gasoline

ZHU Lai-ying, ZHANG Qing-hua,
ZHANG Shi-guo, SHI Feng,
DENG You-quan

J. Mol. Catal. (China) **2008**,22(1), 1 ~ 4

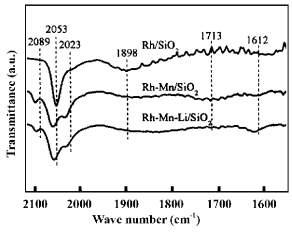


The desulfurization of model gasoline containing thiophene with ionic liquid modified PVA membrane was investigated. The preliminary results showed that the ionic liquid modified PVA membrane was suitable for the treatment of low thiophene concentration gasoline.

Studies of Highly Efficient Rh-Mn-Li/SiO_2 Catalyst by Microcalorimetry and FT-IR

JIANG Da-hao, DING Yun-jie,
LI Lin, CHEN Wei-miao,
LUO Hong-yuan, ZHANG Tao

J. Mol. Catal. (China) **2008**,22(1), 5 ~ 10

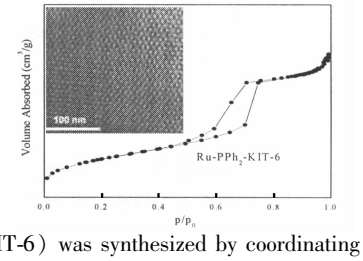


Highly efficient Rh-Mn-Li/SiO_2 catalyst was developed by re-optimization of metal ratio, and the effect of promoters such as Mn and Li on CO hydrogenation performance of Rh/SiO_2 was researched by Microcalorimetry and Fourier Transform infrared (FT-IR).

Study on the Mesoporous Ru-PPh_2-KIT-6 as a Catalyst Used in Water-medium Isomerization of Homoallylic Alcohol

ZHANG Fang, LI He-xing

J. Mol. Catal. (China) **2008**,22(1), 11 ~ 16

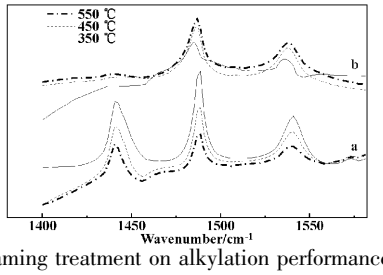


A Ru(II) organometallic catalyst immobilized on KIT-6 (Ru-PPh_2-KIT-6) was synthesized by coordinating Ru(II) with PPh_2-ligand connecting the KIT-6, which exhibited high activity and could be used repetitively for 5 times.

The Study on Alkylation Reaction of Thiophenic Compounds for Desulfurization of FCC Naphtha over USY Zeolite Catalysts

ZHAO Yu-zhi, LI Yong-hong,
LI Lan-fang, ZHANG Li-ping

J. Mol. Catal. (China) **2008**,22(1), 17 ~ 21

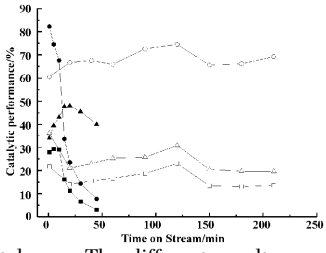


Ultra - stable zeolite Y was prepared by zeolite NH_4 Y steamed at high temperature. The effects of different conditions of USY steaming treatment on alkylation performance were investigated. The property of USY were characterized by some techniques such as BET, FT-IR. The results of the FT-IR suggested that zeolite USY with larger acid sites performed better on the. alkylation reactions.

Study on Conversion of Butylenes to Propylene over SAPO-34 Molecular Sieve

HUANG Zhi-yong, KE Li, FENG Jing,
LIU Xue-wu, ZHANG Ming-sen

J. Mol. Catal. (China) **2008**,22(1), 22 ~ 26

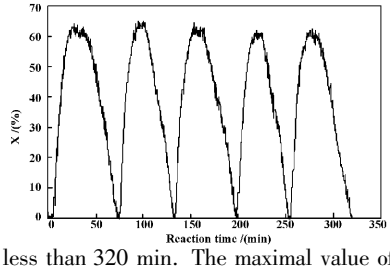


SAPO-34 molecular sieve was synthesized through hydrothermal crystallization and used as catalyst for preparation of propylene from butylenes. The different results were got under different reaction condition. The initial catalytic activity of SAPO-34 molecular sieves was better than that of ZSM-5 zeolite. The single process lifetime of SAPO-34 was shorter than that of ZSM-5.

Characterizations of Ceria-Based Oxygen Carriers for Partial Oxidation Methane to Syngas

WEI Yong-gang, WANG Hua,
LIU Ming-chun, ZHANG Chi-yuan,
LI Kong-zhai

J. Mol. Catal. (China) **2008**,22(1), 27 ~ 32

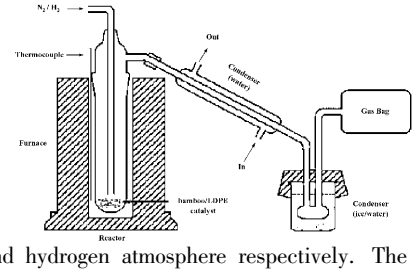


Cerium oxide finished 5 redox cycles at methane and air atmosphere less than 320 min. The maximal value of X which is the lost lattice oxygen degree of oxygen carrier reached 63%, the reaction time of recovering lattice oxygen is a little more than that of losing lattice oxygen in every one cycle.

Pd/Al_2O_3 Catalysts Catalyzed Co-pyrolysis of Pubescens and Polyethylene

ZENG Qi, LI Gui-ying,
TONG Dong-mei, HU Chang-wei

J. Mol. Catal. (China) **2008**,22(1), 33 ~ 38



Palladium based catalysts supported on alumina were prepared by incipient wetness impregnation and used in the co-pyrolysis of Pubescens and low density polyethylene mixture under nitrogen and hydrogen atmosphere respectively. The yield and quality of the oil phase obtained under hydrogen atmosphere were obviously better than those under nitrogen atmosphere. Crystalline palladium favored the formation of liquid products.

Synthesis of Acetals and Ketal Catalyzed by $LaPW_{12}O_{40}$

XU Zhao-hui, LIAO Wei-lin,
WANG Sheng

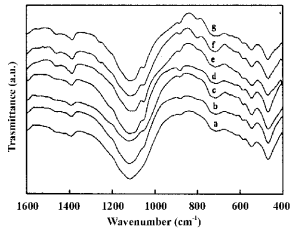
J. Mol. Catal. (China) **2008**,22(1), 39 ~ 43

Benzaldehyde glycol acetal, benzaldehyde 1,2-propanediol acetal and cyclohexanone ethylene ketal were synthesized in the presence of $LaPW_{12}O_{40}$. The various factors influencing the synthesis were investigated, the optimum conditions were found and the catalyst with better catalytic effects.

Synthesis and Characterization of a New Kind of Boron Aluminophospate Molecular Sieves

LI Zheng, Feng Li-li,
Qi Xing-yi, Zhu Yue-lin

J. Mol. Catal. (China) **2008**,22(1), 44 ~ 47

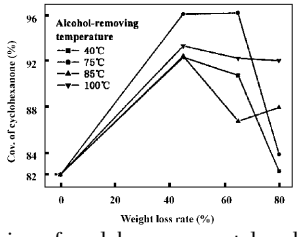


A series of boron aluminophospate molecular sieves (BAPO-11, AEL topology) were synthesized by static hydrothermal method and characterized by XRD, BET, FTIR and SEM techniques.

Effect of the Dry Gel Conversion Synthesis Conditions and Post Treatment with Phosphate Acid on the Synthesis of TS-1 and Its Properties

XU Li, KE Xue-bin,
ZENG Chang-feng, ZHANG Li-xiong,
XU Nan-ping

J. Mol. Catal. (China) **2008**,22(1), 48 ~ 53

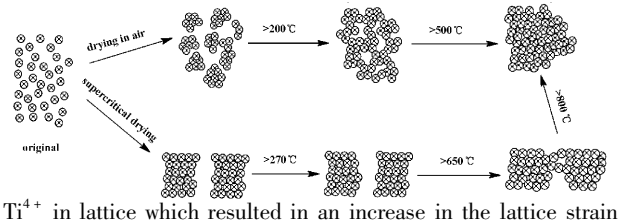


The conversion of cyclohexanone catalyzed by TS-1 synthesized at various temperatures of removing alcohol and different weight loss rates of the gel.

The Fe-TiO_2 with High Thermal Stability Prepared by Supercritical Ethanol Drying

LU Han-feng, ZHOU Ying,
XU Bo-qing, CHEN Yin-fei,
LIU Hua-zhang

J. Mol. Catal. (China) **2008**,22(1), 54 ~ 60



Small amount of Fe^{3+} (<0.5 at %) in TiO_2 will replace Ti^{4+} in lattice which resulted in an increase in the lattice strain and the bulk lattice defects. Decrease in photoactivity of Fe-TiO_2 with the Fe contents under UV light could attribute to the increase in the amount of bulk defects that acting as a combination center of electron and hole.

The Synthesis of Ceria-Zirconia Solid Solution Optimized by Taguchi Design Method

WU Shao-liang, LIU Xin-mei,
YAN Zi-feng

J. Mol. Catal. (China) **2008**,22(1), 61 ~ 64

Taguchi design method is efficient to optimize the synthesis conditions of ceria-zirconia solid solution. It can differentiate the primary and lesser factors. The specific surface area of ceria - zircon solid solution optimized by taguchi method could be kept 88.0 $m^2 \cdot g^{-1}$ at 800 ℃.

表 5 铈锆固溶体的 N_2 等温吸附结果

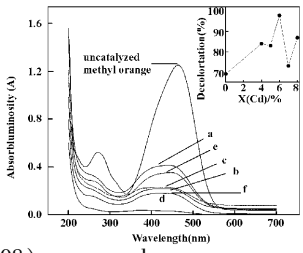
Table 5 the N_2 isotherm adsorption results of ceria-zirconia solid solution

Calcinations temperature	S_{BET} ($m^2 \cdot g^{-1}$)	Pore volume ($cm^3 \cdot g^{-1}$)	Pore diameter (nm)
Fresh-taguchi	337.2	0.31	3.6
500 ℃-taguchi	220.8	0.18	3.5
800 ℃-taguchi	88.1	0.09	3.4
800 ℃-coprecipitation	57.4	0.07	3.5

Preparation and Photocatalytic Performance of Spinel Type $(Zn_{1-X}Cdx)_2SnO_4$ Powders

ZHENG Xiu-jun, LI Jin-zhou,
LI Gang, DU Xiao-yan

J. Mol. Catal. (China) **2008**,22(1), 65 ~ 69

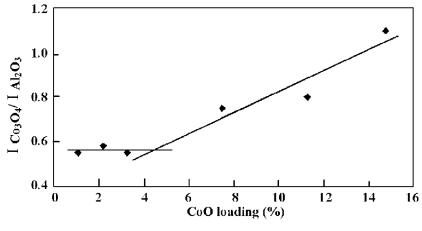


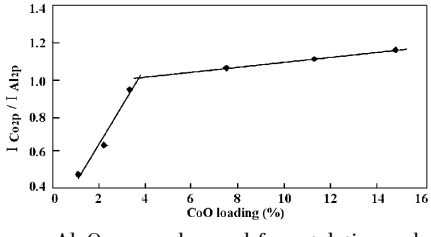
A series of spinel type $(Zn_{1-X}Cdx)_2SnO_4$ (x = 0.04, 0.05, 0.06, 0.07, 0.08) nano powders were prepared by the coprecipitation method. The average particle size of the powder of the cubic $(Zn_{1-X}Cdx)_2SnO_4$ was less than 30 nm and the catalytic activity of Zn_2SnO_4 is clearly improved owing to Cd doping.

Study of States of Co Species on γ-Al_2O_3 and Activities for Catalytic Combustion of Benzene

LI Zhi-kun, LU Gong-xuan, CHEN Jian-ping, YANG Bao-jun, JIAO Tian-shu, JIN Zhi-liang, ZOU Li-peng

J. Mol. Catal. (China) **2008**,22(1), 70 ~ 74



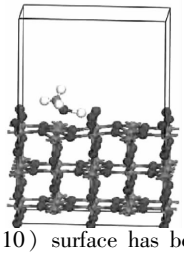


The obvious effects of dispersion threshold in dispersion of Co on γ-Al_2O_3 were observed for catalytic combustion of benzene. Below the dispersion threshold, Cobalt oxide is dispersed on in monolayer state. Above the dispersion threshold, Co exists in crystals or cluster state on alumina surface. High temperature treatment resulted in formation of $CoAl_2O_4$ spinel, which showed lower activity. Co_3O_4 was identified as the main active phase for catalytic combustion of benzene.

A Theoretical Study on the Adsorption and Decomposition of Methanol over SnO_2(110) Surface

CHEN Wen-kai, LIU Shu-hong,
LU Chun-hai

J. Mol. Catal. (China) **2008**,22(1), 75 ~ 79

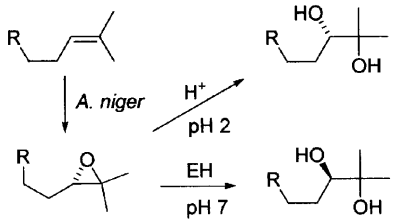


The adsorption and dissociation of methanol over stoichiometric SnO2(110) surface has been studied by density functional theory. The calculated activation energy barrier for methanol dissociation reaction over SnO_2 surface is 44.3 kJ/mol.

Mechanism and Application of Asymmetric Dihydroxylation of Olefins Catalyzed by Aspergillus Niger

ZHANG Zi-zhang

J. Mol. Catal. (China) **2008**,22(1), 80 ~ 85

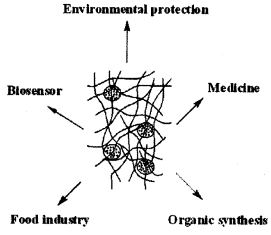


Asymmetric dihydroxylation of remote double bond of olefins mediated by Aspergillus niger proceeds via a common intermediate (*S*)-epoxide and two distinct mechanisms of epoxide ring opening, yielding (*S*)-diol at pH 2 and (*R*)-diol at pH 7 respectively.

Enzymes Immobilization and Their Applications

LI Ye

J. Mol. Catal. (China) **2008**,22(1), 86 ~ 96



Recent progresses of the enzymes immobilization and applications are reviewed. Enzyme immobilization methods, characteristics of immobilized enzymes and their applications in food industry, biosensor, organic synthesis environmental protection and medicine are summarized.