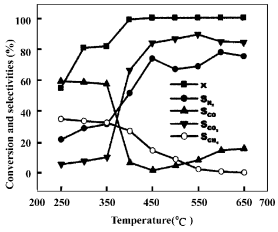
Hydrogen Production from Ethanol Steam Reforming over Al_2O_3 Supported Ni-Cr/$MgAl_2O_4$ Catalyst

MAO Li-ping, HU Xun, LV Gong-xuan

J. Mol. Catal. (China) **2007**, 21(5), 385 ~ 390

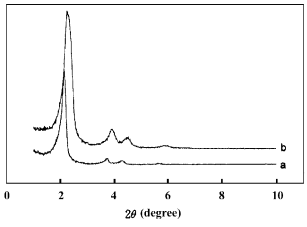


Ni-Cr/$MgAl_2O_4$ spinel catalysts for hydrogen production from ethanol steam reforming were developed. The ethanol conversion and selectivity of hydrogen reached 98.9% and 51.4% at 400 ℃ respectively, while those data was up to 100% and 73.8% at 450 ℃.

The Synthesis of Al-MSU-S-Y and Its Catalytic Activity on the Synthesis of Acetals and Ketals

LIU Cai-hua, LIANG Xue-zheng, YU Xin-yu,
GAO Shan, YANG Jian-guo, HE Ming-yuan

J. Mol. Catal. (China) **2007**, 21(5), 391 ~ 395

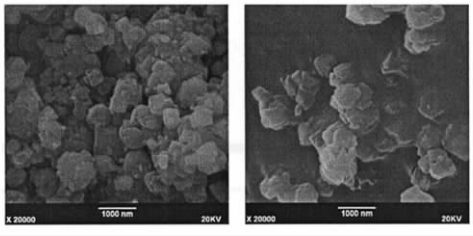


Al-MSU-S-Y was synthesized from using the precursor of Y zeolite using 1-hexadecane-3-methyl-imidazolium bromide (CMIMB) as a template in basic medium. It was an efficient catalyst for the synthesis of acetals and ketals.

Effect of Hetero-atom on the Stability of Y Zeolite Framework

SHEN Zhi-hong, JU Ya-na,
CHEN Ran, QI Xin, LI Dan

J. Mol. Catal. (China) **2007**, 21(5), 396 ~ 400

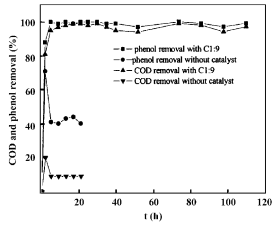


The effect of hetero-atom on thermal and hydrothermal stability of zeolite Y was characterized by DSC and XRD. The results showed that titanium in the framework enhanced the thermal and hydrothermal stability of zeolite Y.

Catalytic Wet Air Oxidation of Acetic Acid and Phenol with Ru/ZrO_2-CeO_2 Catalysts

WANG Wei, WANG Jian-bing,
ZHU Wan-peng, YANG Shao-xia,
HE Wei-jun, CHEN Xun

J. Mol. Catal. (China) **2007**, 21(5), 401 ~ 405

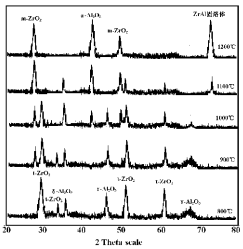


The most efficient catalyst was obtained by measuring the COD removal of acetic acid, The dynamic experiment was carried out using phenol as model reaction.

Effect of ZrO_2 Loading Amount on Structure and Properties of ZrO_2/Al_2O_3 Composite Support

LI Ning, LUO Lai-tao

J. Mol. Catal. (China) **2007**,21(5), 406 ~ 412

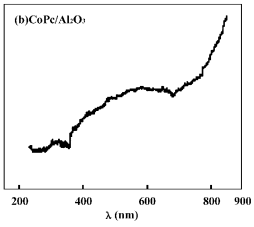


XRD patterns of ZrO_2-0.60/Al_2O_3 composite support prepared by microwave drying.

Preparation, Characterization and Catalytic Oxidation of CoPc/Al_2O_3

YANG Guo-yu, ZHU Hai-lin,
ZHOU Wen-feng, JIANG Deng-gao

J. Mol. Catal. (China) **2007**,21(5), 413 ~ 416

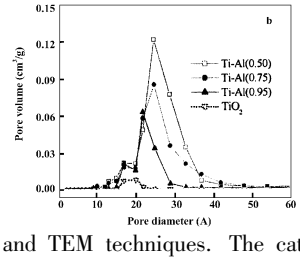


CoPc complex was supported on the acid alumina using in-situ method. The compound was characterized by some analytical method. The catalyst show high activity and can be recycled.

Peparation and Characterization of Nanoscale γ-Al_2O_3/TiO_2 Composite

LI Zhe, QUAN Yan-hong, CHANG Yu,
XU Li, HUANG Wei, XIE Ke-chang

J. Mol. Catal. (China) **2007**,21(5), 417 ~ 422

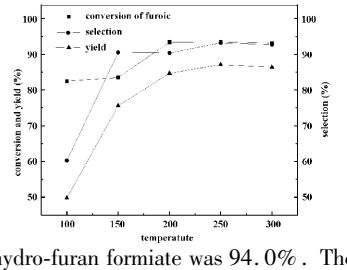


γ-Al_2O_3/TiO_2 composite with different TiO_2 contents were prepared by co-sol-gel and mixing gel method and characterized by XRD, BET and TEM techniques. The catalytic activity of 1% Pd catalyst with composite oxide exhibits the best activity for catalytic oxidation of ethanol and acetaldehyde.

One-Step-Catalytic Preparation of Methyl Tetra-hydro-furan Formiate from Furoic Acid

LI Zhe-qi, JIANG Wen-feng,
WANG Hui-long

J. Mol. Catal. (China) **2007**,21(5), 423 ~ 426

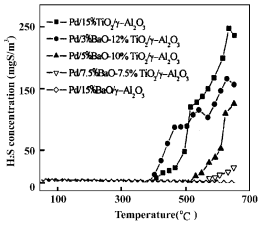


The hydrogenation and methyl esterification of furoic acid over Pd-Ni/γ-Al_2O_3 catalysts was investigated in fixed bed microeactor. The results obtained showed that the yield of methyll tetra-hydro-furan formiate was 94.0%. The duration test showed that no sign of deactivation in furoic acid hydrogenation and methyl esterification observed over the period of more than 280 h.

Investigations of NO_x Storage and Sulfur Resistance of $Pd/TiO_2/\gamma$-Al_2O_3

CHEN Ying, HE Jun, MA Yu-gang,
CHEN Xiao-ping, WANG Le-fu, LI Xue-hui

J. Mol. Catal. (China) **2007**,21(5), 427 ~ 432

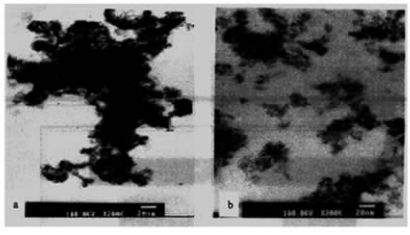


One of effect BaO on the sulfur resistance of the catalyst $Pd/TiO_2/\gamma$-Al_2O_3 was studied by H_2 S-TPR. The sulfur resistance was affected by kinds of sulfur compounds formed on catalyst in the presence of SO_2 in emission. It was convinced that addition of BaO (3%) did not influenced reduction of the sulfur compounds which was used to explain sulfur resistance but can improve NO_x storage.

Effects of the Composite Support and Its Preparation Methods on Properties of Ni - B Amorphous Alloy Catalyst

SHI Qiu-jie, LEI Jing-xin,
Li Xiao-yu

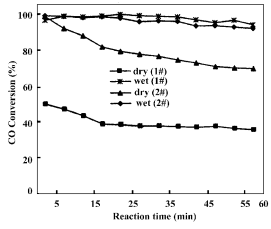
J. Mol. Catal. (China) **2007**,21(5), 433 ~ 437



Effects of composite supports and their preparation methods on the catalytic properties of the amorphous Ni B alloy were studied. Ni B amorphous alloy catalysts supported on composite support TiO_2-Al_2O_3 exhibit higher activity and selectivity than Ni-B/γ-Al_2O_3 for the liquid phase hydrogenation of furfural to furfural alcohol. The activity and selectivity of Ni-B/TiO_2-Al_2O_3 (I) are higher than those of Ni-B/TiO_2-Al_2O_3 (S).

Effects of Preparation Conditions on Catalytic Performance of Pt-Pd Catalysts for CO Oxidation

CHEN Hong-xiang, YIN Yan-hua
J. Mol. Catal. (China) **2007**,21(5), 438 ~ 441

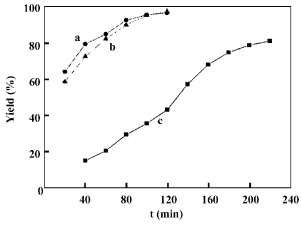


The Pt-Pd catalysts exhibited best activity at room temperature and moisture. The effect of water vapor on the activity was studied, and a positive effect for Pt-Pd catalyst was observed.

Study on Hydrosilylation of Acetylene with Triethoxysilane

XIONG Zhu-jun, DENG Feng-jie,
LI Feng-yi

J. Mol. Catal. (China) **2007**,21(5), 442 ~ 446

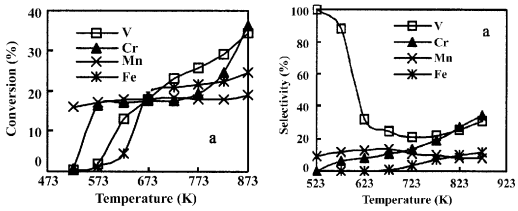


The catalytic systems of platinum-isopropyl alcohol, platinum - polymethylvinylsiloxane and platinum - triphenyl phosphine for the catalyzing hydrosilation of acetylene with triethoxysilane were compared. The influence of reaction conditions was investigated.

Study on M-Fe-O Catalysts for Oxidative Dehydrogenation of Propane to Propene

XU Ai-ju, ZHAORI GETU,
LIN Qin

J. Mol. Catal. (China) **2007**,21(5), 447 ~ 452

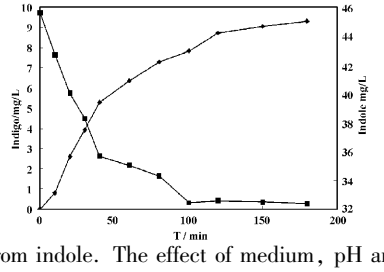


A series of M-Fe-O (M = V, Cr, Mn, Co, Ni, Cu, Zn) catalysts were prepared by oxalate co-precipitation method with microwave heating. V-Fe-O and Cr-Fe-O catalysts showed higher catalytic activity for propene formation than other catalysts.

Biosynthesis of Indigo by Naphthalene-degrading Bacteria LHJ38

QIU Sen, ZHANG Jian,
SONG Hao, XIA Chun-gu

J. Mol. Catal. (China) **2007**,21(5), 453 ~ 457

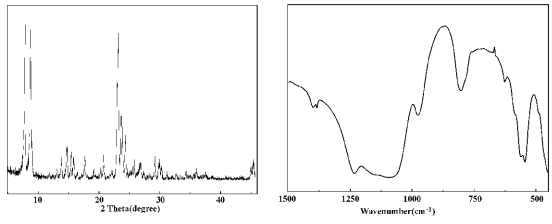


Indigo was biosynthesized by naphthalene-degrading bacteria LHJ38 from indole. The effect of medium, pH and the presence or absence of salicylate on the biosynthesis of indigo by LHJ38 was studied.

Epoxidation of Allyl Chloride Catalyzed by TS-1 Synthesized from Inorganic Titanosilicate System

XIAO Sha, ZHOU Ji-cheng

J. Mol. Catal. (China) **2007**,21(5), 458 ~ 462

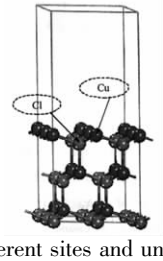


The TS-1 synthesized from inorganic titanosilicate system was characterized by XRD and FT-IR. The results show that the materials have MFI structure and contains framework Ti species. The TS-1 synthesized from inorganic titanosilicate system almostly have the same catalytic performance in epoxidation of epoxidation of allyl choride, compared with TS-1 syntheiszed from organic synthesis system.

A DFT Study on the Adsorption of NO on CuCl (111) Surface

WANG Xia, DENG Zhao-pu,
SUN Bao-zhen, XU Xiang-lan,
CHEN Wen-kai

J. Mol. Catal. (China) **2007**,21(5), 463 ~ 468

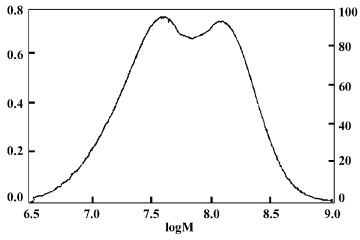


The adsorption of NO on CuCl(111) surface was investigated with periodic DFT method. The physical chemistry properties for NO adsorbed at different sites and under different coverage of CuCl(111) surface of CuCl(111) surface were compared and the relative stabilities were predicted. The results show that top site is the most favorable position for NO adsorption on CuCl (111) surface with N-end model.

Dinuclear Titanocene for Syndiotactic Polystyrene

CHEN Jie, DANG Kai,
PEI Chang-wen, YANG Yu-lin,
WU Xiao-lin, JIANG Zhao-hua

J. Mol. Catal. (China) **2007**,21(5), 469 ~ 471

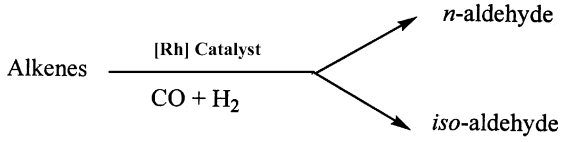


A new type of dinuclear titanocene was synthesized towards the syndiospecific polymerization of styrene . The dinuclear titanocene/MAO catalytic system could produce high molecular weight and syndiotacticity polystyrenes having bimodal molecular weight distribution.

Recent Progress of Rhodium Catalysts in Homogeneous Hydroformylation

XIA Ya-na, LI Feng, WU Biao

J. Mol. Catal. (China) **2007**,21(5), 472 ~ 482

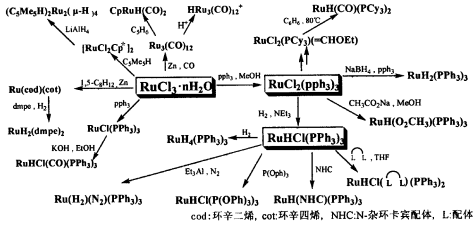


Hydroformylation with rhodium complexes is one of the most important homogeneous catalytic reactions in industry. The performance of the catalysts strongly depends on the ligands. In thisreview, we summarize the recent developments of the catalytic behaviors of rhodium complexes with mono-, bi- and multidentate phosphine, phosphite, chiral phosphine, and N-heterocyclic carbene ligands in homogeneous hydroformylation.

The Preparation of Ru-H Complexes and Application for Catalysts of Organic Synthesis

YUE Chuan-jun, FENG Xiu-juan,
HE Ren, ZHANG Wen-zhen

J. Mol. Catal. (China) **2007**,21(5), 483 ~ 491



This paper is a review in preparation and application of Ru-H complexes. The Synthesis of Ru-H complexes show in Fig. 1.

In general, the chemical reduction of Ru-Cl bond with $NaBH_4$ is used in laboratory. However, the reduction with alcohol / alkaline system is more inexpensive and convenient. The synthesis of Ru-H complexes via ligand displace is one of important method, especially for chiral Ru-H complexes.

Recent Progress in Catalytic Reaction of Dimethyl Ether

SUN Ming, YU Lin,
HAO Zhi-feng, YU Qian,
PENG Lan-qiao

J. Mol. Catal. (China) **2007**,21(5), 492 ~ 498