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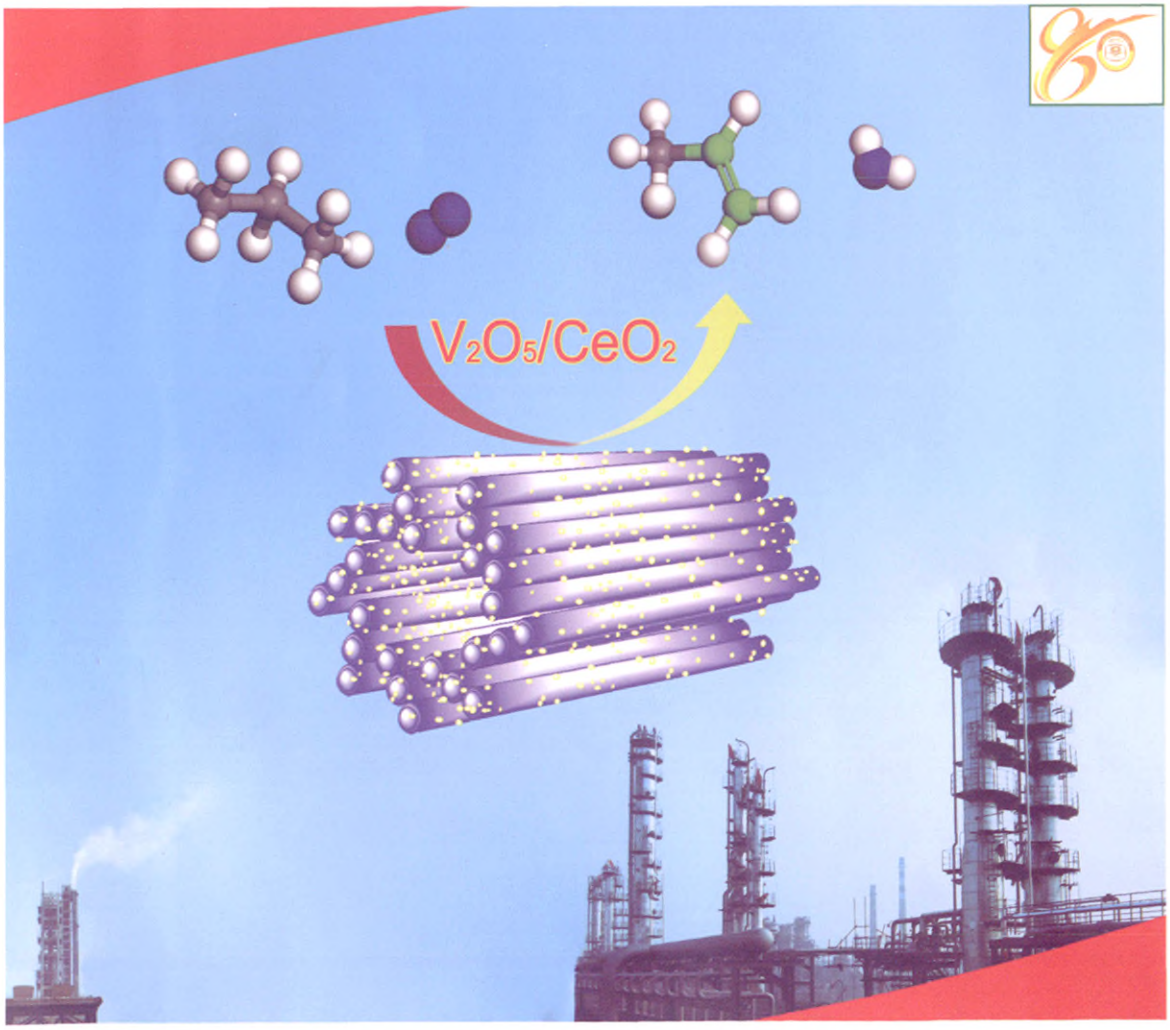

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催化学报

(CUIHUA XUEBAO)

CHINESE JOURNAL OF CATALYSIS

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Communications

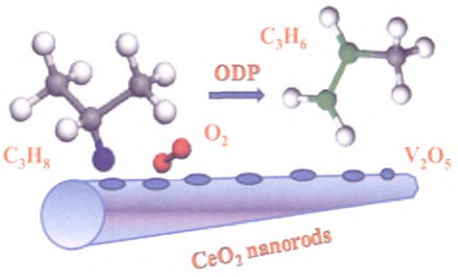
Chin. J. Catal., 2012, 33: 1069–1074 doi: 10.1016/S1872-2067(11)60404-X

Structural Effects of Cerium Oxides on Their Thermal Stability and Catalytic Performance in Propane Oxidation Dehydrogenation

GAO Xufeng, CHEN Chunlin, REN Shiyuan, ZHANG Jian*, SU Dangsheng*

Institute of Metal Research, Chinese Academy of Sciences

This communication presents the change of cerium oxides nanostructures with the thermal treatment, being important to make clear the relationship between structure and thermal stability and catalytic performance.



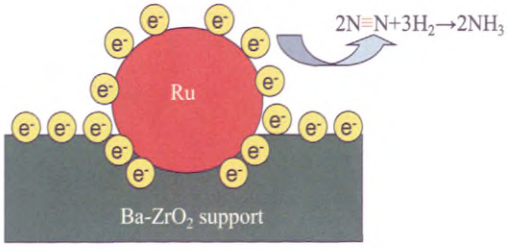
Chin. J. Catal., 2012, 33: 1075–1079 doi: 10.1016/S1872-2067(11)60413-0

Ammonia Synthesis over Ruthenium Catalysts using Barium-Doped Zirconia as Supports Prepared by Citric Acid Method

LIN Jianxin*, WANG Ziqing, ZHANG Liuming, NI Jun, WANG Rong, WEI Kemei

Fuzhou University

Ru/Ba-ZrO_2 was an excellent catalyst for ammonia synthesis especially under mild conditions. This was attributed to the presence of $BaZrO_3$ with high basicity and ability to conduct electrons.

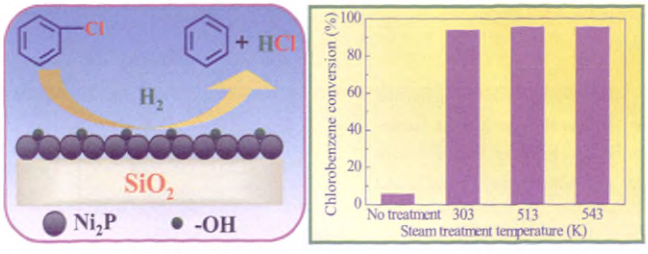


Chin. J. Catal., 2012, 33: 1080–1085 doi: 10.1016/S1872-2067(11)60418-X

Promotion Effect of Steam Treatment on Activity of Ni_2P/SiO_2 for Hydrodechlorination of Chlorobenzene

GUO Ti, CHEN Jixiang*, LI Kelun

Tianjin University



A promoting effect of steam treatment on the activity of Ni_2P/SiO_2 for hydrodechlorination of chlorobenzene was found. This is probably related to synergism between Ni sites and P–OH groups.

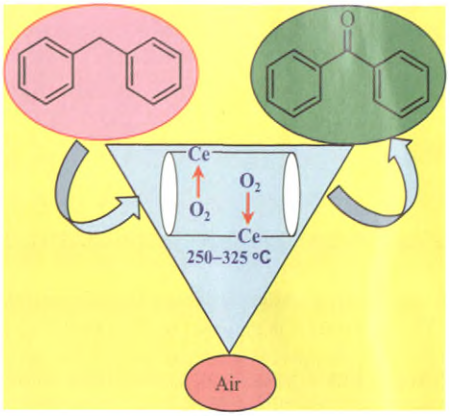
Articles

Chin. J. Catal., 2012, 33: 1086–1094 doi: 10.1016/S1872-2067(11)60401-4

Selective Oxidation of Diphenylmethane to Benzophenone over CeAlPO-5 Molecular Sieves

Subbiah DEVIKA, Muthiahpillai PALANICHAMY, Velayutham MURUGESAN*
Anna University, India

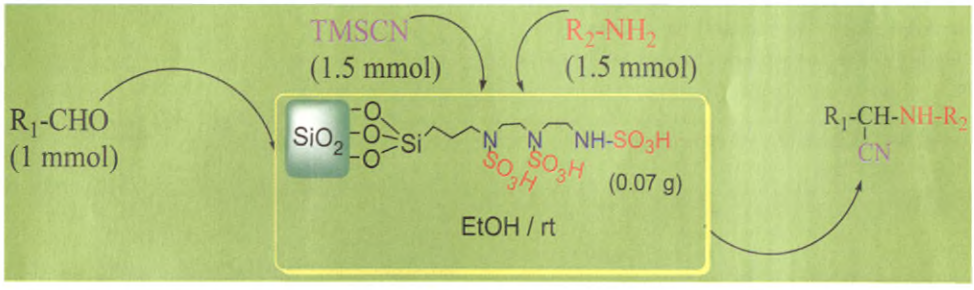
Selective oxidation of diphenylmethane was carried over CeAlPO-5 (Al/Ce = 25, 50, 75, 100, and 125) molecular sieves between 250 and 325 °C. The main product of oxidation was benzophenone. The catalytic activity increased with decrease in the Al/Ce ratio of the catalyst.



Chin. J. Catal., 2012, 33: 1095–1100 doi: 10.1016/S1872-2067(11)60383-5

Silica-Bonded *N*-Propyldiethylenetriamine Sulfamic Acid as a Recyclable Solid Acid Catalyst for the Synthesis of α-Aminonitriles

Tahere RAHI, Mojtaba BAGHERNEJAD, Khodabakhsh NIKNAM*
Gachsaran Branch, Islamic Azad University, Iran; Persian Gulf University, Iran



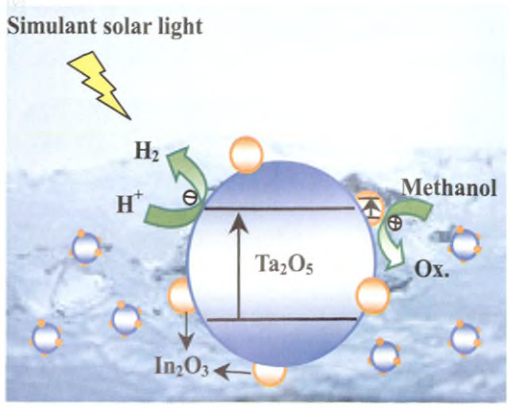
α-Aminonitriles were synthesized using silica-bonded *N*-propyldiethylenetriamine sulfamic acid as a recyclable solid acid catalyst for condensation of an aldehyde, amine, and trimethylsilyl cyanide at room temperature.

Chin. J. Catal., 2012, 33: 1101–1108 doi: 10.1016/S1872-2067(11)60382-3

Photocatalytic Activity for Hydrogen Evolution over Well-Dispersed Heterostructure In_2O_3/Ta_2O_5 Composites

XU Leilei, NI Lei, SHI Weidong, GUAN Jianguo*
Wuhan University of Technology

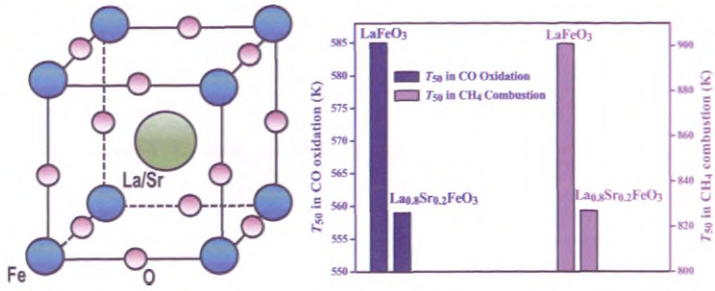
Well-dispersed In_2O_3/Ta_2O_5 composites exhibit enhanced photocatalytic activity for hydrogen production under simulant solar light irradiation because of effective photogenerated charge-carrier separation between In_2O_3 and Ta_2O_5.



Chin. J. Catal., 2012, 33: 1109–1114 doi: 10.1016/S1872-2067(11)60388-4

Structural Properties and Catalytic Activity of Sr-Substituted $LaFeO_3$ Perovskite

ZHANG Xiaojing, LI Huaju, LI Yong, SHEN Wenjie*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

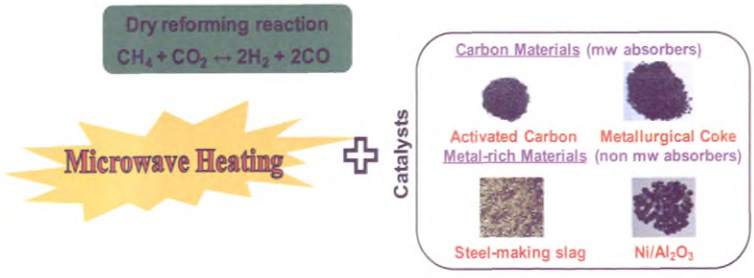


Sr substitution in $LaFeO_3$ induced the generation of oxygen vacancies, which facilitated the dissociation of gaseous oxygen and diffusion of lattice oxygen, and enhanced the activity for CO oxidation and methane combustion.

Chin. J. Catal., 2012, 33: 1115–1118 doi: 10.1016/S1872-2067(11)60386-0

Mixtures of Steel-Making Slag and Carbons as Catalyst for Microwave-Assisted Dry Reforming of CH_4

Jose M. BERMUDEZ, Beatriz FIDALGO, Ana ARENILLAS, J. Angel MENENDEZ*
Instituto Nacional del Carbon, Spain



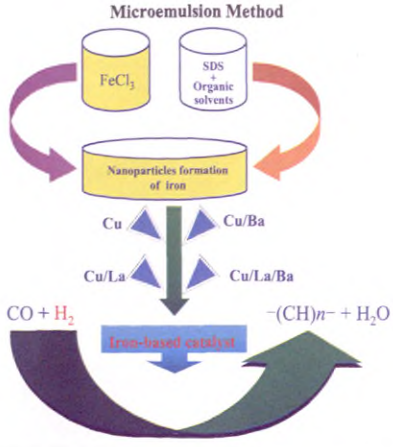
The use of steel-making slag as catalysts for microwave-assisted dry reforming of CH_4 is investigated. Two carbon materials, mixtures of the carbon materials and Fe-rich slag, and mixtures of the carbon materials and Ni/Al_2O_3 are tested as catalysts.

Chin. J. Catal., 2012, 33: 1119–1124 doi: 10.1016/S1872-2067(11)60396-3

Synergetic Effect of La and Ba Promoters on Nanostructured Iron Catalyst in Fischer-Tropsch Synthesis

Yahya ZAMANI, Mehdi BAKAVOLI*, Mohamad RAHIMIZADEH, Ali MOHAJERI, Seyed Mohamad SEYEDI
Ferdowsi University of Mashhad, Iran;
National Iranian Oil Company, Iran

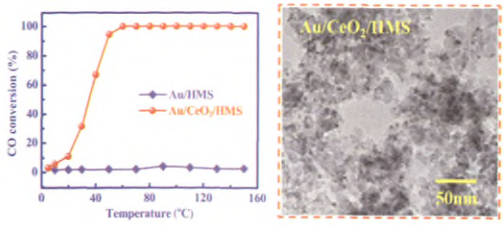
The effect of promoters such as Ba and La has been investigated on the conventional nanostructured iron catalyst in Fischer-Tropsch synthesis (FTS). The results indicate that adding promoters could improve activity of Fe catalysts for FTS and water-gas shift reaction and lower the gas fraction at the outlet. In addition, both Ba- and La-promoted Fe catalysts exhibit the highest activity due to the synergetic effect.



Chin. J. Catal., 2012, 33: 1125–1132 doi: 10.1016/S1872-2067(11)60399-9

Role of CeO_2 in Three-Component $Au/CeO_2/SiO_2$ Composite Catalyst for Low-Temperature CO Oxidation

ZHANG Huili, REN Lihui, LU Anhui, LI Wencui*
Dalian University of Technology

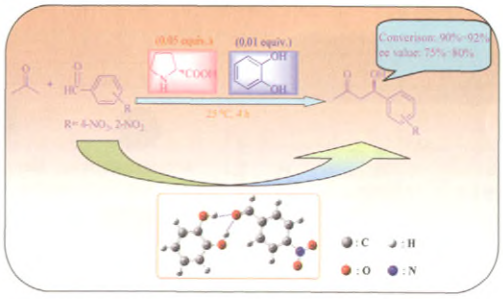


Hierarchical composite nanostructures composed of Au, CeO_2, and SiO_2 were fabricated by sequentially depositing ceria nanoparticles through impregnation and calcination and then gold nanoparticles through deposition-precipitation on hierarchical monolithic silica (HMS). The presence of ceria had a significant effect on controlled on target deposition and the stabilization of small metallic gold nanoparticles on the support.

Chin. J. Catal., 2012, 33: 1133–1138 doi: 10.1016/S1872-2067(11)60394-X

Effect of Additives on L-Proline Catalyzed Direct Asymmetric Aldol Reactions

LUO Jianqing, TAN Rong*, KONG Yu, LI Chengyong, YIN Donghong*
Hunan Normal University; China Tobacco Hunan Industrial Corporation

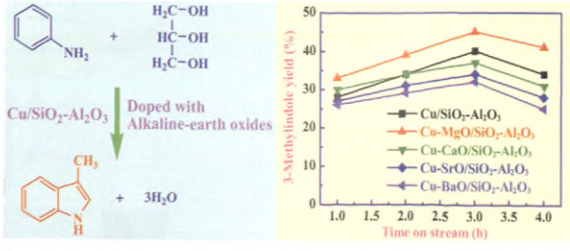


Cheap catechol promoted the L-proline catalyzed aldol reaction efficiently through hydrogen-bonds interaction, which decreased the amount of L-proline and increased the yield of aldol products.

Chin. J. Catal., 2012, 33: 1139–1145 doi: 10.1016/S1872-2067(11)60407-5

Effect of Alkaline-Earth Metal Oxides on Cu/SiO_2-Al_2O_3 Catalyst for Vapor-Phase Synthesis of 3-Methylindole from Glycerol and Aniline

WANG Zhaoyu, LI Xiaohui, ZHANG Yue, SHI Lei*, SUN Qi
Liaoning Normal University

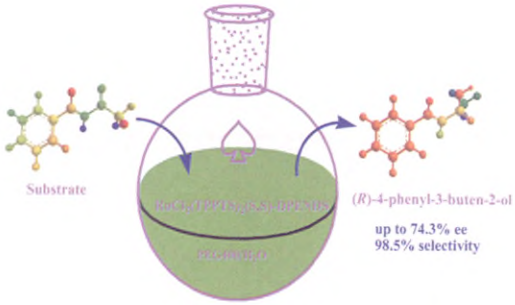


Alkaline-earth oxides introduced into a Cu/SiO_2-Al_2O_3 catalyst for the vapor-phase synthesis of 3-methylindole from glycerol and aniline and MgO improved its performance.

Chin. J. Catal., 2012, 33: 1146–1153 doi: 10.1016/S1872-2067(11)60397-5

Green and Recyclable Medium for Asymmetric Hydrogenation of Benzalacetone Catalyzed by $RuCl_2(TPPTS)_2$-(S,S)-DPENDS

QIN Ruixiang, WANG Jinbo*, XIONG Wei, FENG Jian, LIU Derong, CHEN Hua*
Chongqing University of Science and Technology; Sichuan University

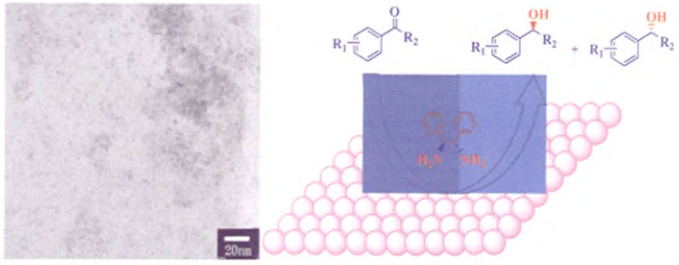


PEG400/H_2O was an efficient recyclable reaction medium for asymmetric hydrogenation of benzalacetone catalyzed by $RuCl_2(TPPTS)_2$-(*S*,*S*)-DPENDS. Utilizing this medium chemoselectivity for 4-phenyl-3-buten-2-ol was 98.5% and ee value of 74.3% was achieved. The catalyst immobilized on PEG400/H_2O could be recycled and used repeatedly without significant loss of chemoselectivity and enantioselectivity.

Chin. J. Catal., 2012, 33: 1154–1160 doi: 10.1016/S1872-2067(11)60403-8

(1*S*,2*S*)-Diphenylethylenediamine Modified Ir/SiO_2 Catalyst for Asymmetric Hydrogenation of Acetophenone and Its Derivatives

YANG Chaofen, YANG Jun, SUN Xiaodong, ZHU Yanqin, WANG Qi, CHEN Hua*
Kunming University of Science and Technology; Sichuan University

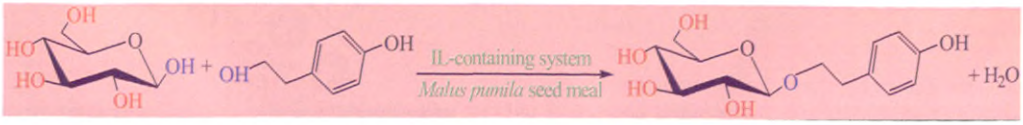


5%Ir/SiO_2 prepared under basic conditions exhibited good catalytic performance in the asymmetric hydrogenation of acetophenone and its derivatives.

Chin. J. Catal., 2012, 33: 1161–1165 doi: 10.1016/S1872-2067(11)60395-1

Ionic Liquid Effects on the Activity of β-Glycosidase for the Synthesis of Salidroside in Co-solvent Systems

BI Yanhong, WANG Zhaoyu*, MAO Yanyong, ZHENG Shangyong, ZHANG Haijiang, SHI Hao
Huaiyin Institute of Technology

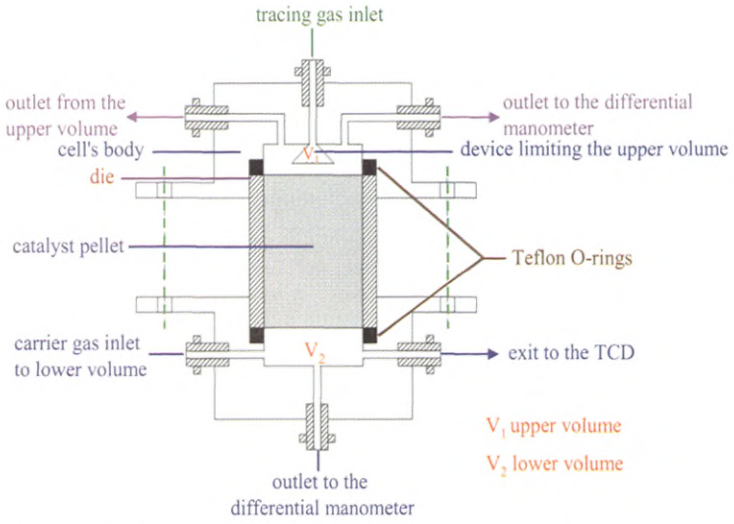


The effects of 1-alkylimidazolium-based ionic liquids possessing different alkyl chain lengths (C_2–C_{10}) and various anions (BF_4^-, PF_6^-, Cl^-, Br^-, and I^-) on β-glycosidase activity for the synthesis of salidroside were investigated.

Chin. J. Catal., 2012, 33: 1166–1175 doi: 10.1016/S1872-2067(11)60406-3

Use of Intraparticle Mass Transfer Parameters as a Design Tool for Catalyst Pellets

L. PETROV*, M. DAOUS, Y. ALHAMED, A. AL-ZAHRANI, Kh. MAXIMOV
King Abdulaziz University, Kingdom of Saudi Arabia; Institute of Catalysis, Bulgarian Academy of Sciences, Bulgaria



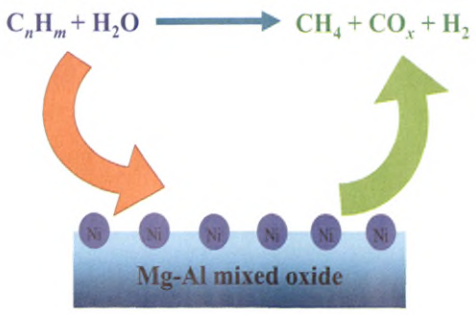
The preparation of catalyst pellets with small pore tortuosity is one of the objectives in selecting pelletizing technology and pelletizing conditions. The intra-particle mass transfer parameters are helpful tool for achieving this aim.

Chin. J. Catal., 2012, 33: 1176–1182 doi: 10.3724/SP.J.1088.2012.20138

Pre-reforming of Liquefied Petroleum Gas over Magnesium Aluminum Mixed Oxide Supported Nickel Catalysts

WANG Xinxing, WANG Xueguang*, SHANG Xingfu, NIE Wangxin, ZOU Xiujing, LU Xionggang, DING Weizhong
Shanghai University

Ni catalysts supported on Mg-Al mixed oxides prepared by a co-precipitation-impregnation method showed excellent catalytic performance and stability for LPG pre-reforming at a low steam/carbon molar ratio of 2.0.

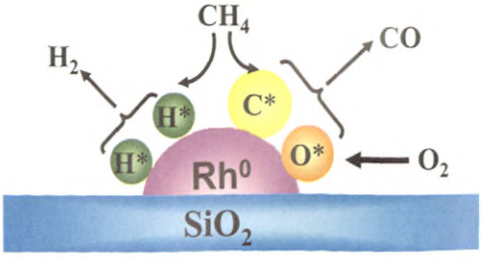


Chin. J. Catal., 2012, 33: 1183–1190 doi: 10.3724/SP.J.1088.2012.20208

Reaction Mechanism for Partial Oxidation of Methane to Synthesis Gas over Rh/SiO_2 Catalyst

WEN Zaigong, LI Hu, WENG Weizheng*, XIA Wensheng, HUANG Chuanjing, WAN Huilin*
Xiamen University

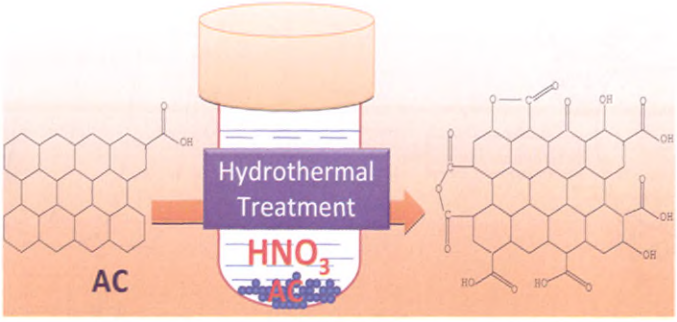
Pyrolysis of methane on reduced rhodium sites followed by coupling of two surface hydrogen atoms to H_2 and partial oxidation of surface carbon species to CO are the major reactions responsible for synthesis gas formation in the oxidation zone of the Rh/SiO_2 catalyst bed.



Chin. J. Catal., 2012, 33: 1191–1197 doi: 10.3724/SP.J.1088.2012.20233

Effect of Hydrothermal Treatment of Activated Carbon by Nitric Acid on Activity of Ba-Ru-K/AC Catalyst for Ammonia Synthesis

FENG Guoquan, LAN Guojun, LI Ying, HAN Wenfeng, LIU Huazhang*
Zhejiang University of Technology



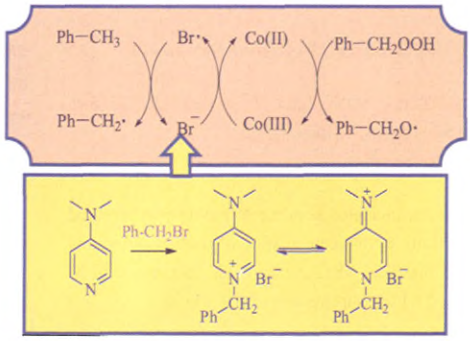
The hydrothermal treatment with HNO_3 is firstly used to adjust the amount of surface oxygen functional groups on activated carbon to a desired degree. The degree of functionalization is found to be strongly dependent on the concentration of HNO_3.

Chin. J. Catal., 2012, 33: 1198–1202 doi: 10.3724/SP.J.1088.2012.20314

4-*N*,*N*-Dimethylamino Pyridine Promoted Oxidation of Toluene Catalyzed by Cobalt Acetate and Benzyl Bromide

ZHANG Zhan, GAO Jin, MA Hong, XU Jie*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

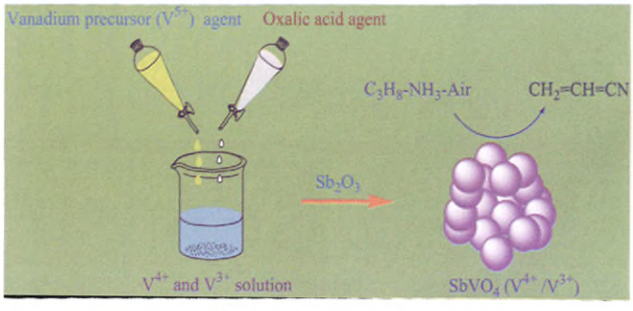
The promoting effect of 4-*N*,*N*-dimethylamino pyridine (DMAP) to cobalt acetate and benzyl bromide catalyzed oxidation of toluene was due to the in situ formation of quaternary pyridinium salts.



Chin. J. Catal., 2012, 33: 1203–1208 doi: 10.3724/SP.J.1088.2012.20204

Effect of Oxalic Acid on the Structure and Catalytic Performance of Sb-V-O Catalyst for Propane Ammoxidation

WANG Guojun, GUO Yun, LU Guanzhong*
East China University of Science and Technology; Shanghai Research Institute of Petrochemical Technology

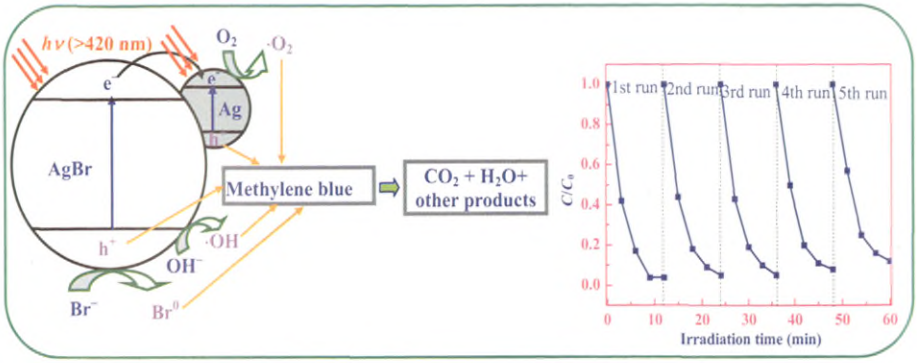


The addition of oxalic acid in the VSb_3 mixed oxide preparation process can keep V at a low valence and generate a higher amount of $SbVO_4$ phase, which is the key active phase for propane ammoxidation.

Chin. J. Catal., 2012, 33: 1209–1216 doi: 10.3724/SP.J.1088.2012.20320

Synthesis of Ag@AgBr Photocatalyst and Its Performance for Degradation of Methylene Blue under Visible-Light Irridiation

NIE Longhui*, HUANG Zhengqing, XU Hongtao, ZHANG Wangxi, YANG Borui, FANG Lei, LI Shuaihua
Hubei University of Technology



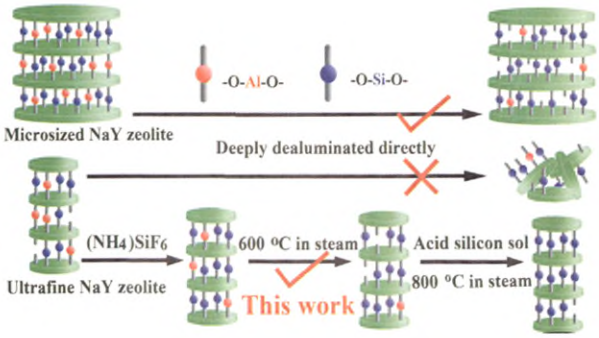
The photocatalytic activity of Ag@AgBr prepared by the deposition-precipitation and photo-reduction method reached 96% in 10 mg/L methylene blue aqueous solution under the visible-light ($\lambda > 420$ nm) irradiation, and it showed good stability in five-cycle test.

Chin. J. Catal., 2012, 33: 1217–1223 doi: 10.3724/SP.J.1088.2012.20249

Deep Dealumination of Ultrafine NaY Zeolite

WANG Xilong, SONG Jinna, YE Xiuqun, GU Haifang, HUANG Yao*, NIU Guoxing*
Fudan University

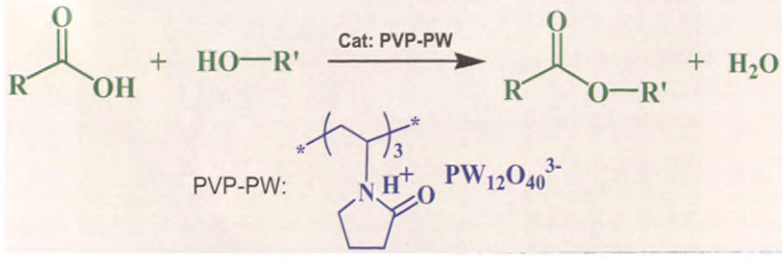
Deeply dealuminated ultrafine Y zeolite was prepared successfully by the combination of dealumination and silicon insertion, showing its high framework Si/Al ratio of 27.3 and surface area of 581.9 m^2/g.



Chin. J. Catal., 2012, 33: 1224–1228 doi: 10.3724/SP.J.1088.2012.20305

Synthesis of Polyvinyl Pyrrolidone-Heteropolyacid Acidic Hybrid Catalyst and Its Catalytic Activity for Esterification Reactions

LENG Yan*, QIU Xueqian, JIANG Pingping, WANG Jun
Jiangnan University; Nanjing University of Technology

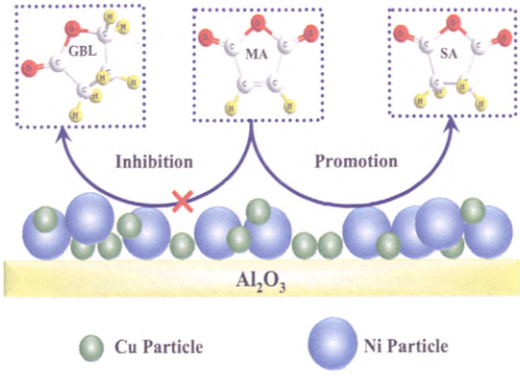


A new heteropolyacid-based acidic hybrid synthesized by combining polyvinyl pyrrolidone with heteropolyanion was revealed to be an efficient recyclable solid catalyst for esterification of acetic acid with *n*-butanol.

Chin. J. Catal., 2012, 33: 1229–1235 doi: 10.3724/SP.J.1088.2012.20247

Selective Hydrogenation of Maleic Anhydride to Succinic Anhydride in Liquid Phase over Ni-Cu/Al_2O_3 Catalyst

WANG Da, ZHANG Yin, LI Haitao, ZHAO Lili, ZHANG Hongxi, ZHAO Yongxiang*
Shanxi University

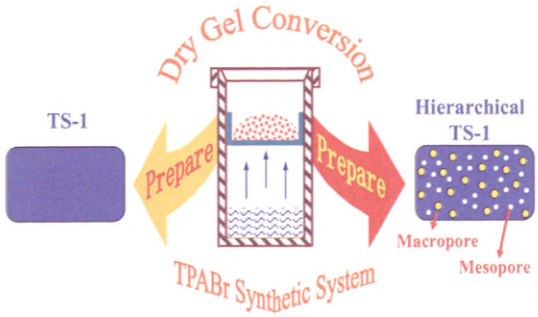


The introduction of Cu to Ni/Al_2O_3 catalyst effectively improved the activity for C=C bond hydrogenation and inhibited the hydrogenation of C=O bond.

Chin. J. Catal., 2012, 33: 1236–1241 doi: 10.3724/SP.J.1088.2012.20226

Titanium Silicalite Synthesized by Dry Gel Conversion Method and Its Catalytic Performance

WANG Weihai, LI Gang*, LIU Liping, CHEN Yongying
Dalian University of Technology



TS-1 and hierarchical TS-1 were prepared by dry gel conversion technique in TPABr synthetic system. Hierarchical TS-1 could exhibit higher catalytic performance than TS-1 in both thiophene and benzothiophene oxidation.