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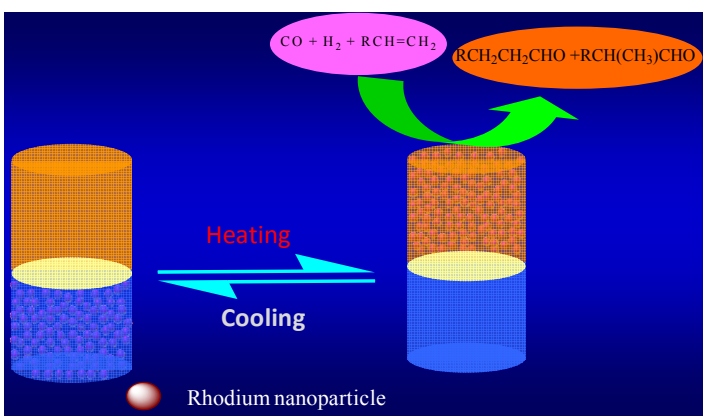
Communications

Chin. J. Catal., 2010, 31: 1191–1194 doi: 10.1016/S1872-2067(10)60110-6

Hydroformylation of Higher Olefins by Thermoregulated Phase-Transfer Catalysis with Rhodium Nanoparticles

LI Kaoxue, WANG Yanhua*, JIANG Jingyang, JIN Zilin
Dalian University of Technology

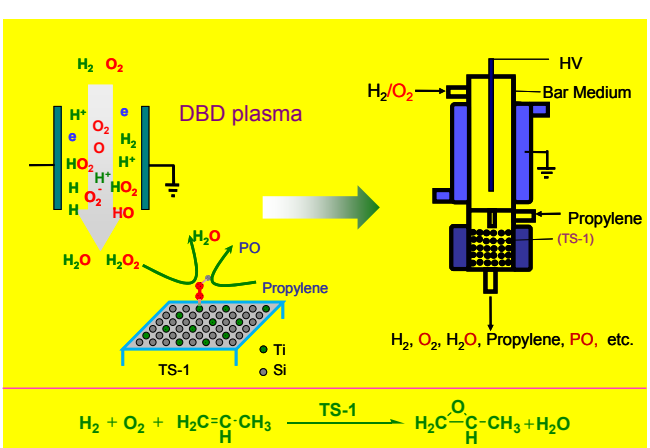


Rhodium nanoparticles were an active and recyclable catalyst in the hydroformylation of higher olefins by thermoregulated phase-transfer catalysis.

Chin. J. Catal., 2010, 31: 1195–1199 doi: 10.1016/S1872-2067(10)60111-8

Gas Phase Epoxidation of Propylene with TS-1 and in Situ H_2O_2 Produced by a H_2/O_2 Plasma

SU Ji, ZHOU Juncheng, LIU Chunyan, WANG Xiangsheng, GUO Hongchen*
Dalian University of Technology; 718th Research Institute of China Shipbuilding Industry Corporation



Gas phase propylene epoxidation was performed by contacting plasma generated gaseous H_2O_2 and propylene over a TS-1 catalyst. The important feature is the use of gaseous H_2O_2 for PO production.

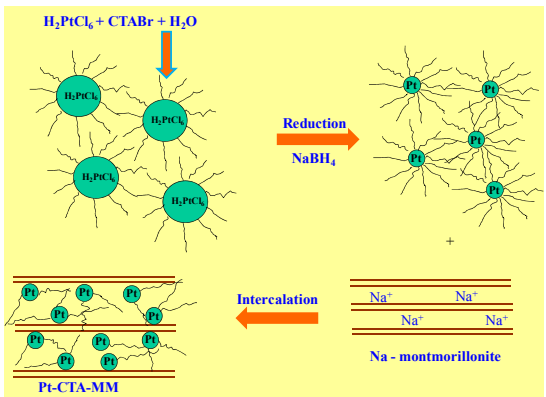
Articles

Chin. J. Catal., 2010, 31: 1200–1208 doi: 10.1016/S1872-2067(10)60112-X

Nanosized Noble Metals Intercalated in Clay as Catalysts for Selective Hydrogenation

Manikandan DHANAGOPAL, DURAISWAMI Divakar, Rupa A. VALENTINE, Mangalaraja RAMALINGA VISWANATHAN, Sivakumar THIRIPURANTHAGAN*
Anna University, India; University of Concepcion, Chile
University of Basque Country, Spain

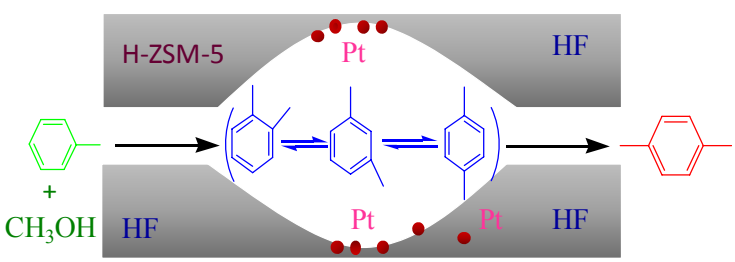
The dependences of activity and selectivity on temperature, amount of metal, and flow rate of hydrogen for the selective hydrogenation of α,β-unsaturated aldehydes over platinum and ruthenium nano-catalysts intercalated in clay were studied.



Chin. J. Catal., 2010, 31: 1209–1216 doi: 10.1016/S1872-2067(10)60113-1

***Para*-Xylene Maximization. Part VIII: Promotion of H-ZSM-5 Zeolite by Pt and HF Doping for Use as Catalysts in Toluene Alkylation with Methanol**

Ahmed K. ABOUL-GHEIT*, Ateyya A. ABOUL-ENEIN, Ahmed E. AWADALLAH, Salwa A. GHONEIM, Eman A. EMAM
Egyptian Petroleum Research Institute, Egypt; College of Petroleum and Mining Engineering, Egypt

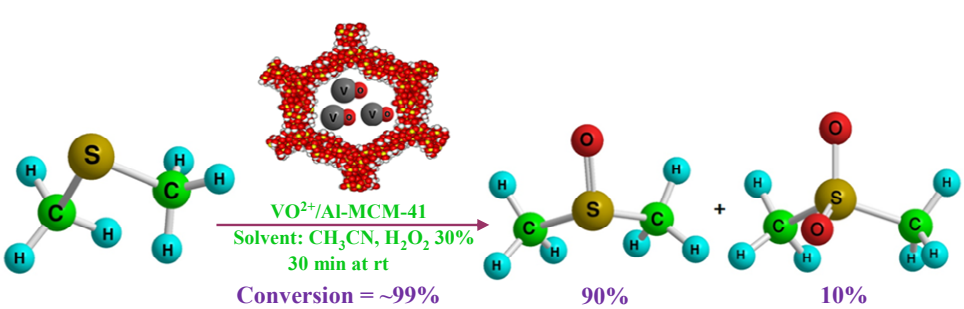


Toluene was alkylated with methanol using catalysts containing Pt/HZSM-5 zeolite doped with 1%, 2%, 3%, or 4% HF. The highest HF doping caused debris deposition in the wider pores of HZSM-5 whereas 1%–3% HF enhanced the activity, *p*-xylene selectivity, and *p*-xylene relative to the thermodynamic equilibrium, and Pt dispersion was high in these catalysts.

Chin. J. Catal., 2010, 31: 1217–1220 doi: 10.1016/S1872-2067(10)60114-3

Catalytic Oxidation of Aryl Alkyl Sulfides Using Immobilized Vanadyl Ions within Nanoreactors of Al-MCM-41

Zamanifar ELHAM, Farzaneh FAEZEH
University of Alzahra, Iran

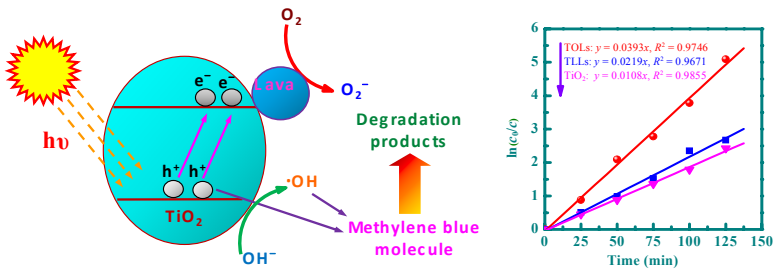


The facile catalytic oxidation of aryl alkyl sulfides with up to 99% conversion and 90% selectivity to the corresponding sulfoxides using H_2O_2 in acetonitrile at room temperature in 30 min with $VOSO_4$ immobilized within nanoreactors of Al-MCM-41 is reported.

Chin. J. Catal., 2010, 31: 1221–1226 doi: 10.1016/S1872-2067(10)60115-5

Preparation of Cost-Effective TiO_2-Outerloaded Porous Lava Composites using Supercritical CO_2 and Their Photocatalytic Activity for Methylene Blue Degradation

MA Minyuan, LI Youji*, CHEN Wei, LI Leiyong
Jishou University

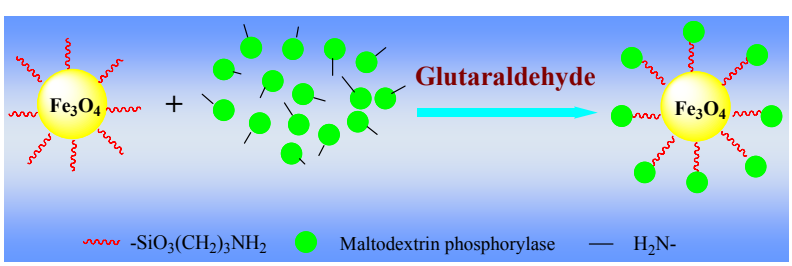


This article reports on a novel supercritical CO_2-assisted procedure for the synthesis of cost effective TiO_2-outerloaded lava composites, which are photocatalytically active during methylene blue degradation.

Chin. J. Catal., 2010, 31: 1227–1232 doi: 10.1016/S1872-2067(10)60116-7

Efficient Synthesis of α-D-Glucose-1-Phosphate by Maltodextrin Phosphorylase Immobilized on Amino-functionalized Magnetic Nanoparticles

DONG Qing, OUYANG Liming, LIU Jianwen, XU Jianhe*
East China University of Science and Technology

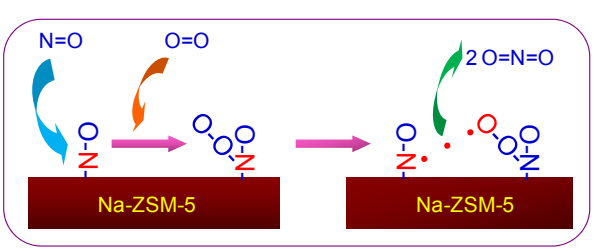


This article presents the strategy used to immobilize maltodextrin phosphorylase onto amino-functionalized Fe_3O_4 nanoparticles for synthesis of α-D-glucose-1-phosphate.

Chin. J. Catal., 2010, 31: 1233–1241 doi: 10.1016/S1872-2067(10)60117-9

Adsorption-Oxidation Reaction Mechanism of NO on Na-ZSM-5 Molecular Sieves with a High Si/Al Ratio at Ambient Temperature

LIU Huayan, ZHANG Zekai, XU Yuanyuan, CHEN Yinfei*, LI Xi
Zhejiang University; Zhejiang University of Technology

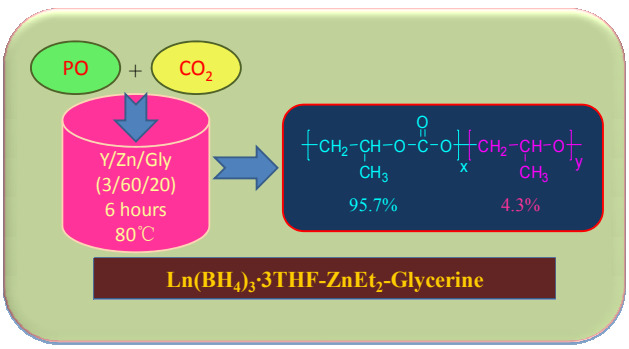


A dynamic equilibrium exists for the physical adsorption of NO_2 and for NO oxidation on Na-ZSM-5. Strongly adsorbed NO_3 (ONOO) is formed by adsorbed NO and gaseous O_2, is an intermediate for NO oxidation, and accelerates the reaction.

Chin. J. Catal., 2010, 31: 1242–1246 doi: 10.3724/SP.J.1088.2010.00425

Copolymerization of Propylene Oxide and CO_2 Catalyzed by a Rare Earth Borohydride-Diethylzinc-Glycerine Ternary System

LIU Guangxuan, LI Cong, CHEN Dan, NI Xufeng, JIANG Liming*, SHEN Zhiquan
Zhejiang University



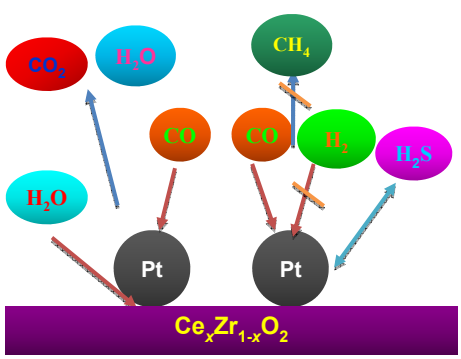
A new catalytic system composed of lanthanide borohydrides, diethylzinc, and glycerine has been developed and found to be effective for copolymerization of propylene oxide and CO_2, yielding poly(propylene carbonate)s with a high carbonate content.

Chin. J. Catal., 2010, 31: 1247–1252 doi: 10.3724/SP.J.1088.2010.00327

Water Gas Shift Activity of Pt/$Ce_xZr_{1-x}O_2$ Catalysts in Sulfur-Containing Syngas

LIU Bing, LI Wenzhao, XU Hengyong*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

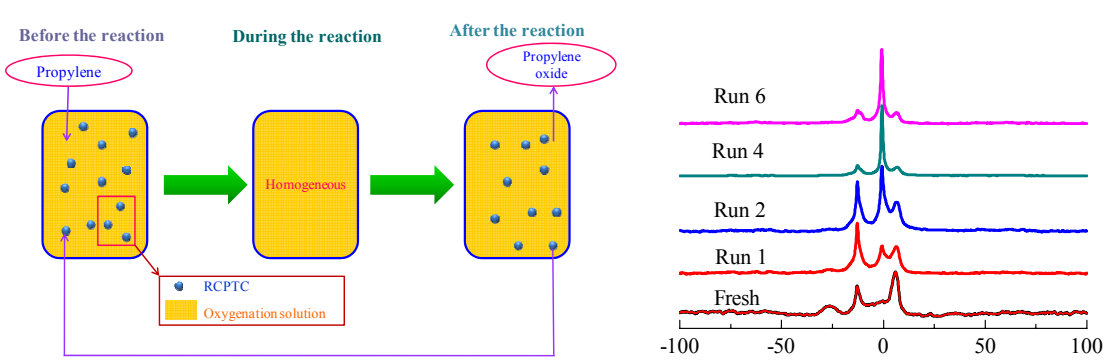
H_2 adsorbs only on clean Pt atoms, but CO can adsorb to some extent on the Pt atoms poisoned by sulfur. Methane selectivity but not water gas shift activity was inhibited by sulfur.



Chin. J. Catal., 2010, 31: 1253–1256 doi: 10.3724/SP.J.1088.2010.00328

Epoxidation of Propylene Catalyzed by Reaction-Controlled Phase Transfer Catalyst with in-Situ H_2O_2

ZHANG Hengyun , LÜ Ying , LI Jun , GAO Shuang* , XI Zuwei
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

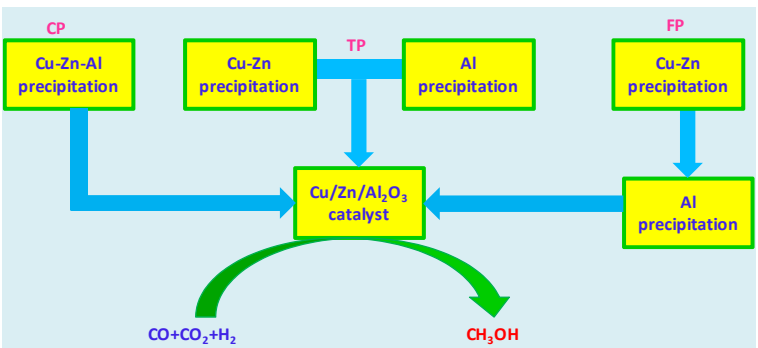


The stability of a reaction-controlled phase transfer catalyst (RCPTC) in epoxidation of propylene with in-situ H_2O_2 was investigated. The results of ^{31}P MAS NMR for the recovered catalyst showed that the catalyst composition tended to being stable after the third cycle.

Chin. J. Catal., 2010, 31: 1257–1262 doi: 10.3724/SP.J.1088.2010.00325

Influence of Precipitation Methods on Precursors and Properties of Cu-Based Catalyst for Methanol Synthesis

LIN Shengda, TANG Haodong, LÜ Zhaobo, LIU Cailai, CEN Yaqing, LIU Huazhang*
Zhejiang University of Technology

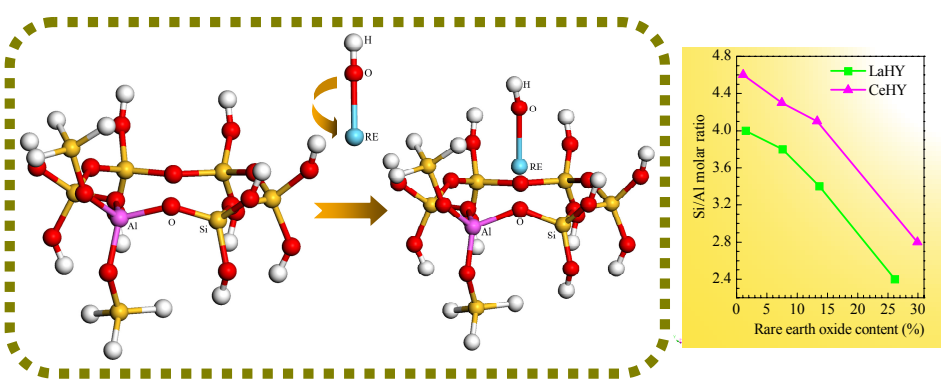


The methanol yield over the $Cu/ZnO/Al_2O_3$ catalyst prepared by a fractional precipitation (FP) method is higher than that over the catalyst prepared by co-precipitation (CP) and two-stage precipitation (TP) methods.

Chin. J. Catal., 2010, 31: 1263–1270 doi: 10.3724/SP.J.1088.2010.00310

Mechanism of the Influence of Lanthanum and Cerium on the Stability of Y Zeolite

YU Shanqing*, TIAN Huiping, DAI Zhenyu, LONG Jun
Research Institute of Petroleum Processing, SINOPEC

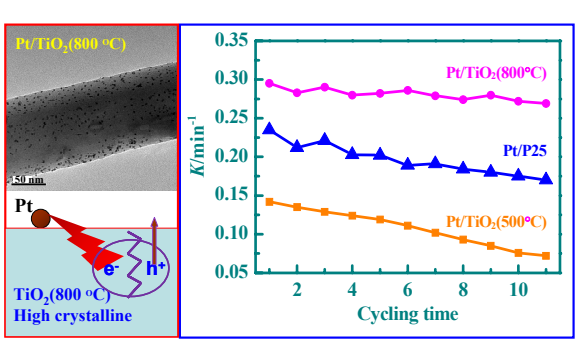


The enhanced stability of LaHY or CeHY mainly depends on the strong interaction between La or Ce and Y zeolite, and the influence of La and Ce is different.

Chin. J. Catal., 2010, 31: 1271–1276 doi: 10.3724/SP.J.1088.2010.00408

Highly Crystalline TiO_2 Whisker Modified with Pt and Its Photocatalysis Performance

DING Yulan, BAI Yang, LI Wei, CHEN Shanshan, ZHU Yudan, ZHU Yinhua, YANG Zhuhong*, LU Xiaohua
Nanjing University of Technology

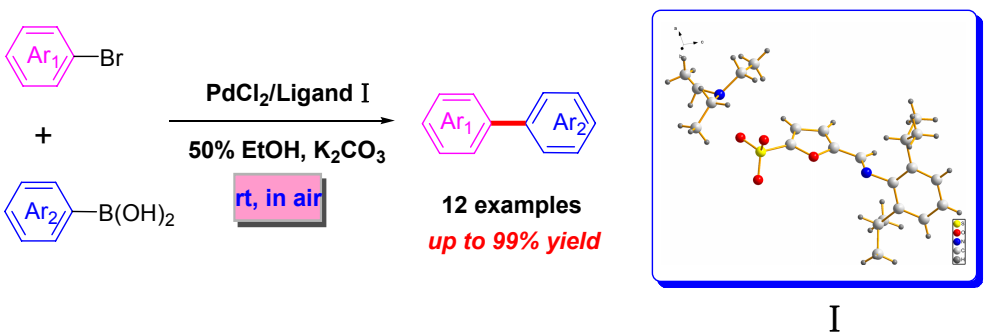


A novel anatase titanium dioxide whisker (TiO_2(800°C)) with high crystallinity and thermal stability was prepared, and the Pt/TiO_2(800°C) showed excellent photocatalytic performance for phenol degradation .

Chin. J. Catal., 2010, 31: 1277–1280 doi: 10.3724/SP.J.1088.2010.00412

Water-Soluble Imine Ligand/Palladium-Catalyzed Suzuki Reaction at Room Temperature

LIU Chun*, NI Qijian, HU Pingping, YUAN Hao, JIN Zilin
Dalian University of Technology

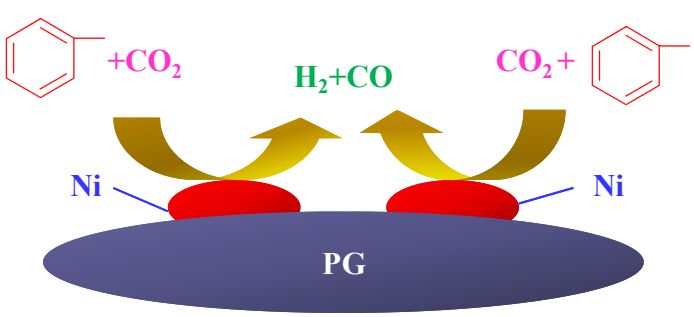


A mild and effective protocol has been developed for the palladium-catalyzed Suzuki reaction of aryl bromides with arylboronic acids in the presence of water-soluble imine ligand **I** at room temperature.

Chin. J. Catal., 2010, 31: 1281–1285 doi: 10.3724/SP.J.1088.2010.00329

CO_2 Reforming of Toluene from Biomass Tar over Ni/Palygorskite Catalyst

SHI Peichao, CHEN Tianhu*, ZHANG Xianlong, CHEN Dong, SONG Lei, LI Jinhu
Dalian University of Technology



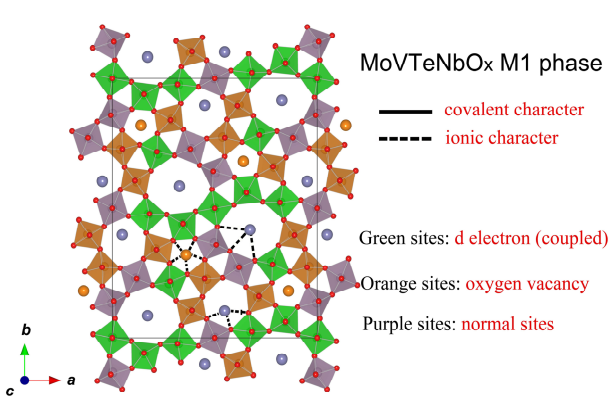
In the presence of CO_2, catalytic cracking of biomass tar was carried out over Ni/polygorskite (Ni/PG) using toluene as the model compound. The adsorption of CO_2 on the Ni/PG catalyst improved the toluene conversion, and carbon deposit decreased in the CO_2 atmosphere.

Chin. J. Catal., 2010, 31: 1286–1292 doi: 10.3724/SP.J.1088.2010.00415

A Combined Bond-Valence and Periodic DFT Study of the Active Sites in M1 Phase of MoVTeNbO Composite Oxide Catalyst

ZHU Yihan, LU Weimin*, DONG Xue, WANG Yang, MA Fei
Zhejiang University

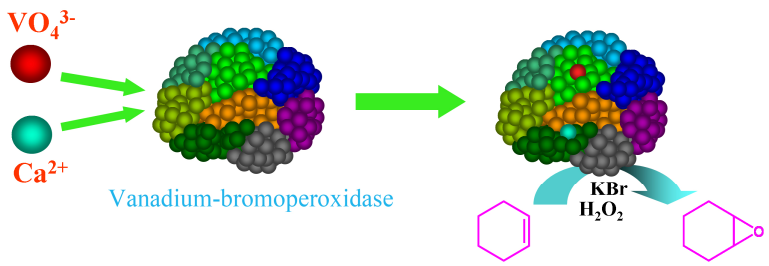
The coupled *d* electrons localize at green sites in the M1 phase of the MoVTeNbO composite oxide catalyst, while the oxygen vacancies occur at orange sites. The structure is formed by ionic structure-direction and stabilized by covalent bonding.



Chin. J. Catal., 2010, 31: 1293–1299 doi: 10.3724/SP.J.1088.2010.00438

Effects of Calcium and Vanadium Ions on the Epoxidation of Cyclohexene with H_2O_2 Catalyzed by Vanadium Bromoperoxidase

ZHANG Biaoming, CAO Xupeng, XUE Song, XIAO Tonghu, ZHANG Wei*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences; Ningbo University; Flinders University, Australia

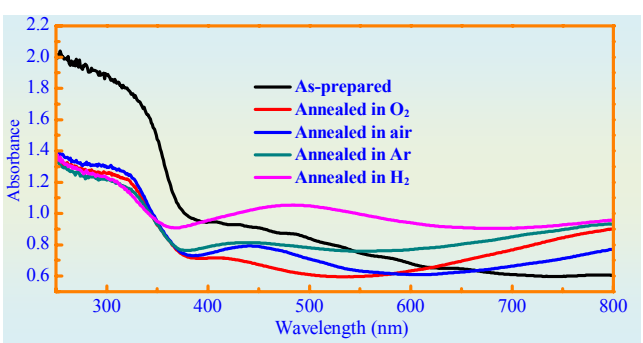


After dialysis with a buffer containing VO_4^{3-} and Ca^{2+}, the catalytic performance of vanadium-bromoperoxidase was greatly enhanced in the epoxidation of cyclohexene. Combined with the optimized reaction conditions and continuous feed of H_2O_2, the epoxidation productivity was improved.

Chin. J. Catal., 2010, 31: 1300–1304 doi: 10.3724/SP.J.1088.2010.00418

Effect of Heat Treatment on the Photoelectrocatalytic Performance of TiO_2 Nanotube Array Films

ZHANG Xi, LING Yunhan*, LIAO Lei, NIU Zhiyuan, CHEN Shilei, ZHAO Chenggen
Guilin University of Technology; Tsinghua University



Photoelectrocatalytic performance of TiO_2 nanotube array films was governed by the charge transfer characteristics of TiO_2 nanotube samples. The improvement of light absorbance and the low transfer impedance contributed to the excellent photoelectrocatalytic performance of the sample annealed in oxygen for methylene blue degradation.