



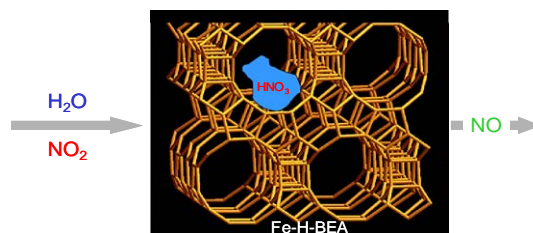
Journal of Catalysis Vol. 271, Issue 1, 2010

Contents

REGULAR ARTICLES

Fe-H-BEA and Fe-H-ZSM-5 for NO₂ removal from ambient air – A detailed in situ and operando FTIR study revealing an unexpected positive water-effect pp 1–11

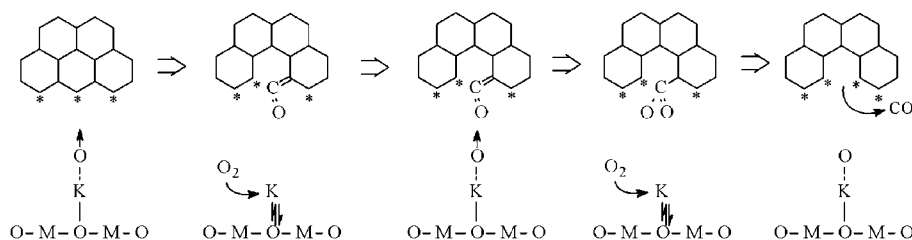
Mike Ahrens, Olivier Marie*, Philippe Bazin, Marco Daturi



The use of operando FTIR indicates that the high efficiency for NO₂ removal from ambient air of iron-containing zeolites comes from their ability to condensate nitric acid.

Catalytic performance and mechanism of potassium-supported Mg–Al hydrotalcite mixed oxides for soot combustion with O₂ pp 12–21

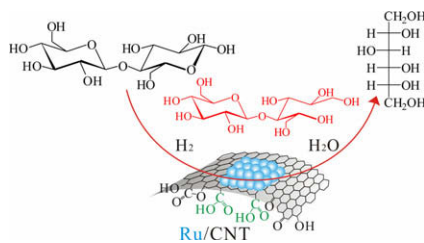
Zhaoliang Zhang*, Yexin Zhang, Zhongpeng Wang, Xiyan Gao



Potassium-supported Mg–Al hydrotalcite mixed oxides were much active and stable for soot combustion. The reaction mechanism was elucidated based on turnover frequency. M stands for Mg or Al.

Conversion of cellobiose into sorbitol in neutral water medium over carbon nanotube-supported ruthenium catalysts pp 22–32

Weiping Deng, Mi Liu, Xuesong Tan, Qinghong Zhang*, Ye Wang*

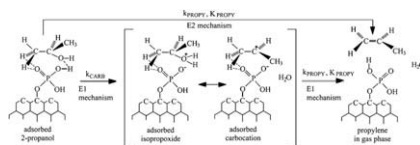


The mean size of Ru nanoparticles and the catalyst acidity are key factors for Ru/CNT-catalyzed hydrogenation of cellobiose to sorbitol in water. 3-β-D-Glucopyranosyl-D-glucitol is a main reaction intermediate.

A kinetic study of 2-propanol dehydration on carbon acid catalysts

pp 33–42

J. Bedia, R. Ruiz-Rosas, J. Rodríguez-Mirasol*, T. Cordero

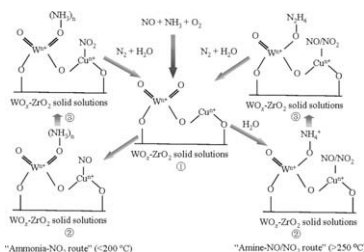


Activated carbons with high surface acidity were obtained in a single step by chemical activation of hemp residues with H_3PO_4 and used as catalysts for the dehydration reaction of 2-propanol.

Structure, acidity and activity of $\text{CuO}_x/\text{WO}_x\text{-ZrO}_2$ catalyst for selective catalytic reduction of NO by NH_3

pp 43–51

Zhichun Si, Duan Weng*, Xiaodong Wu, Jia Li, Guo Li



Two NH_3 -SCR mechanisms on $\text{CuO}_x/\text{WO}_x\text{-ZrO}_2$ catalysts: "ammonia- NO_2 route" (<200 °C) and "amine- NO/NO_2 route" (>250 °C) related with Lewis and Brønsted acid sites.

Efficient and stable solid acid catalysts synthesized from sulfonation of swelling mesoporous polydivinylbenzenes

pp 52–58

Fujian Liu, Xiangju Meng, Yonglai Zhang, Limin Ren, Faisal Nawaz, Feng-Shou Xiao*

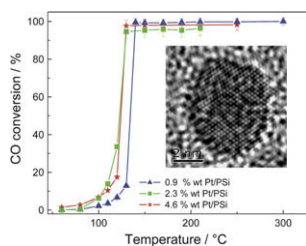


Efficient and stable solid catalysts with good catalytic properties in esterifications and acylation were successfully synthesized from sulfonation of swelling mesoporous polydivinylbenzenes (PDVB) by chlorosulfonic acid in CH_2Cl_2 .

In situ synthesis and catalytic activity in CO oxidation of metal nanoparticles supported on porous nanocrystalline silicon

pp 59–66

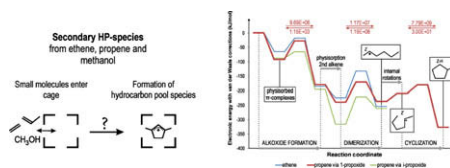
Sergej Polisski, Bernhard Goller, Karen Wilson, Dmitry Kovalev*, Vladimir Zaikowskii, Alexei Lapkin*



Sharp light-off in CO oxidation by Pt nanoparticles deposited onto porous silicon.

Assembly of cyclic hydrocarbons from ethene and propene in acid zeolite catalysis to produce active catalytic sites for MTO conversion pp 67–78

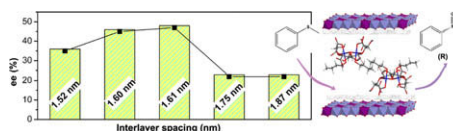
Matthias Vandichel, David Lesthaeghe, Jeroen Van der Mynsbrugge, Michel Waroquier, Veronique Van Speybroeck*



The formation of cyclic hydrocarbons from basic ethene and propene building blocks was investigated in protonated ZSM-5 using a 2-layered ONIOM(B3LYP/6-31+g(d):HF/6-31+g(d)) method including van der Waals corrections. A low-energy pathway starting from propene was found that eventually formed the methylocyclopentane species via intermediate stepwise dimerization.

Constraining titanium tartrate in the interlayer space of layered double hydroxides induces enantioselectivity pp 79–87

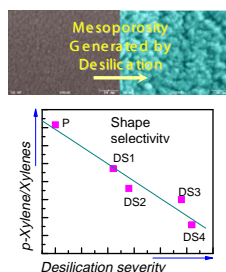
Huimin Shi, Chenguang Yu, Jing He*



The titanium tartrate complex constrained in the flexible bidimensional LDH interlayer region shows enhanced asymmetric induction in the heterogeneous sulfoxidation of pro-chiral methyl phenyl sulfide.

Tailoring the mesopore structure of HZSM-5 to control product distribution in the conversion of propanal pp 88–98

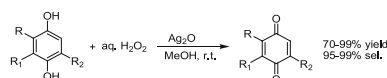
Xinli Zhu, Lance L. Lobban, Richard G. Mallinson, Daniel E. Resasco*



Conversion of propanal to gasoline-range molecules was investigated over a series of HZSM-5 catalysts with controlled mesoporosity generated by desilication. The catalytic selectivity and stability were discussed based on the pore structure, acidity, and diffusivity.

Oxidation of hydroquinones to benzoquinones with hydrogen peroxide using catalytic amount of silver oxide under batch and continuous-flow conditions pp 99–103

Fatemeh Derikvand, Franca Bigi, Raimondo Maggi, Calogero Giancarlo Piscopo, Giovanni Sartori*

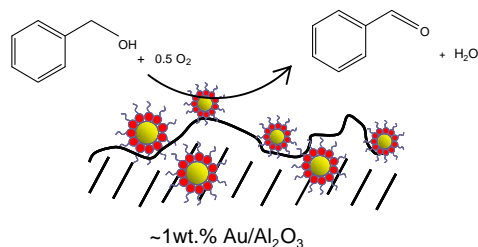


The Ag₂O catalyzed selective oxidation of hydroquinones to benzoquinones with aq. 30% H₂O₂ can be efficiently performed under batch and continuous-flow conditions.

Weakly bound capping agents on gold nanoparticles in catalysis: Surface poison?

pp 104–114

A. Quintanilla*, V.C.L. Butselaar–Orthlieb, C. Kwakernaak, W.G. Sloof, M.T. Kreutzer, F. Kapteijn

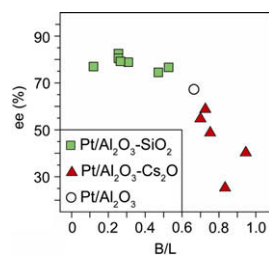


Weakly bound capping agents lower the accessibility to the active sites and may act as catalyst surface poison. An appropriate capping agent is one weakly adsorbed on the particle and that promotes polycrystallinity, viz. poly(vinyl-pyrrolidone).

Influence of support acid–base properties on the platinum-catalyzed enantioselective hydrogenation of activated ketones

pp 115–124

Fatos Hoxha, Bjoern Schimmoeller, Zdenek Cakl, Atsushi Urakawa, Tamas Mallat, Sotiris E. Pratsinis, Alfons Baiker*

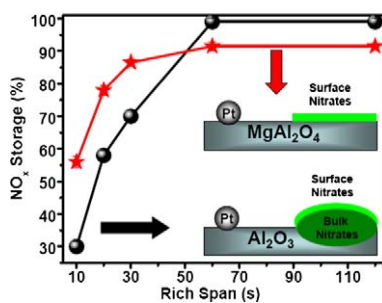


Acid–base properties of flame-made Pt/Al₂O₃ were varied by doping with SiO₂ or Cs₂O. Enantioselectivities in the hydrogenation of ketones are correlated to the ratio of bridged to linearly adsorbed CO (B/L).

Single-step flame-made Pt/MgAl₂O₄ – A NO_x storage–reduction catalyst with unprecedented dynamic behavior and high thermal stability

pp 125–131

Sounak Roy, Niels van Vegten, Alfons Baiker*

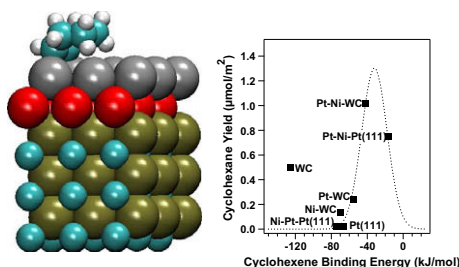


Flame-derived Pt/MgAl₂O₄ shows improved dynamical behavior at short regeneration times in NO_x storage–reduction compared to Pt–Ba/Al₂O₃ reference catalyst.

Replacing bulk Pt in Pt–Ni–Pt bimetallic structures with tungsten monocarbide (WC): Hydrogen adsorption and cyclohexene hydrogenation on Pt–Ni–WC

pp 132–139

Michael P. Humbert, Carl A. Menning, Jingguang G. Chen*

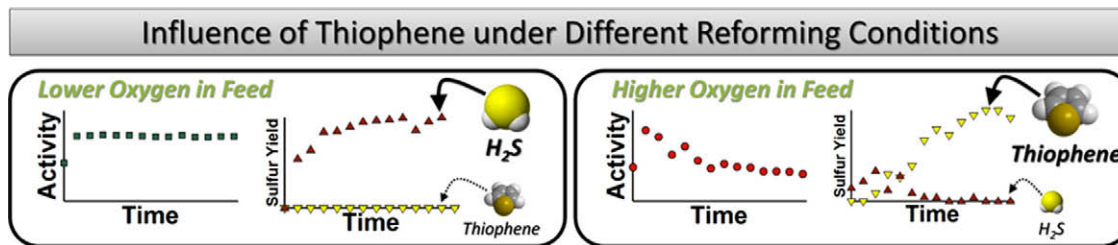


The feasibility of replacing bulk Pt with W in a Pt–Ni–Pt bimetallic structure is examined. The results indicate that Pt–Ni–WC has chemical properties similar to Pt–Ni–Pt with an enhanced stability.

Influence of thiophene on the isooctane reforming activity of Ni-based catalysts

pp 140–152

Joseph M. Mayne, Andrew R. Tadd, Kevin A. Dahlberg, Johannes W. Schwank*



The performance of a Ni-based catalyst was studied under thiophene-exposed isooctane reforming at various O/C and H₂O/C ratios. The reforming conditions have a strong influence on sulfur tolerance.

CORRIGENDUM**Corrigendum to “An insight into the Meerwein–Ponndorf–Verley reduction of α,β -unsaturated carbonyl compounds: Tuning the acid–base properties of modified zirconia catalysts” [J. Catal. 268 (2009) 79–88]**

p 153

Francisco J. Urbano*, Rafael Romero, María A. Aramendía, Alberto Marinas, José M. Marinas