

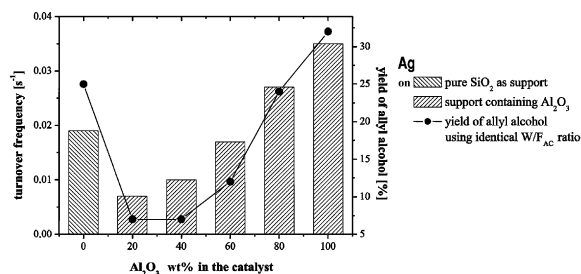


REGULAR ARTICLES

Influence of the support composition on the hydrogenation of acrolein over Ag/SiO₂-Al₂O₃ catalysts

pp 1–8

Claudia E. Volckmar, Michael Bron, Ursula Bentrup, Andreas Martin, Peter Claus*

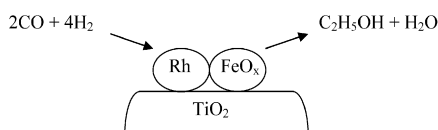


Hydrogenation of acrolein on SiO₂-Al₂O₃ supported Ag catalysts was studied in the gas phase to probe effects of support acidity on catalytic and structural properties. Brønsted acidity was not detected but Lewis acidity was influenced by support composition. Higher Al₂O₃ contents led to higher turnover rates and allyl alcohol yields.

Fe-promotion of supported Rh catalysts for direct conversion of syngas to ethanol

pp 9–16

Mohammad A. Haider, Makarand R. Gogate, Robert J. Davis*

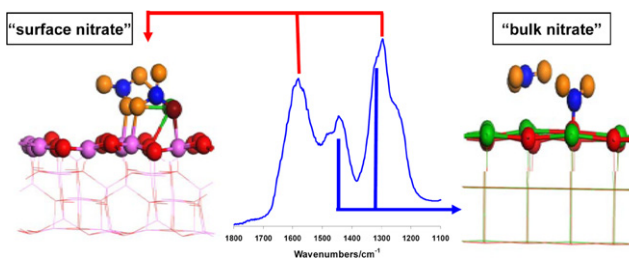


The influence of support, iron promoter loading reaction conditions such as temperature, pressure and H₂:CO ratio on the direct synthesis of ethanol from syngas over Rh metal nanoclusters were explored.

Understanding the nature of surface nitrates in BaO/γ-Al₂O₃ NO_x storage materials: A combined experimental and theoretical study

pp 17–22

Ja Hun Kwak, Donghai Mei*, Cheol-Woo Yi, Do Heui Kim, Charles H.F. Peden, Lawrence F. Allard, János Szanyi*

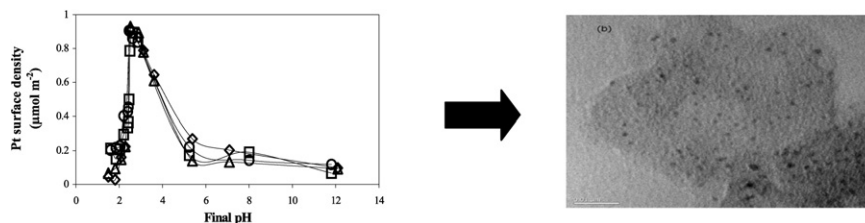


A combined experimental–theory investigation showed that isolated (BaO)_x (x = 1 or 2) species interact strongly with Al_{pent}³⁺ on γ-Al₂O₃(100) surfaces and react with NO₂ to form surface nitrates with characteristic vibrational spectra.

Synthesis of very highly dispersed platinum catalysts supported on carbon xerogels by the strong electrostatic adsorption method

pp 23–33

Stéphanie Lambert*, Nathalie Job, Lawrence D'Souza, Manuel Fernando Ribeiro Pereira, René Pirard, Benoît Heinrichs, José Luis Figueiredo, Jean-Paul Pirard, John R. Regalbuto

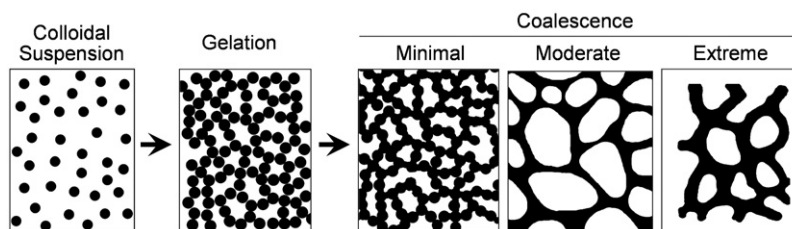


Highly-dispersed and loaded Pt/carbon catalysts with 1.1–1.3 nm cluster diameter were prepared by strong electrostatic adsorption of Pt salts to carbon xerogels.

Influence of porosity on PE molecular weight from the Phillips Cr/silica catalyst

pp 34–49

Max P. McDaniel

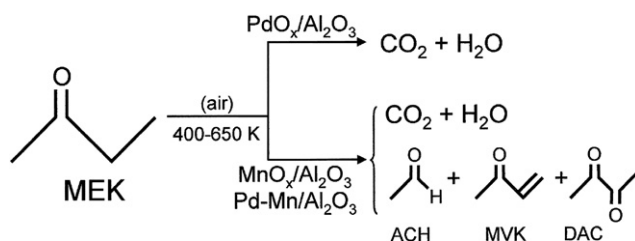


Coalescence of silica nanostructure causes loss of surface area, pore enlargement, matrix reinforcement, and transformation from convex to concave surfaces. These changes together with other porosity modifications of Phillips catalysts strongly influence polyethylene molecular weight and can be used to tailor products for specific applications.

Kinetics and selectivity of methyl-ethyl-ketone combustion in air over alumina-supported $\text{PdO}_x\text{-MnO}_x$ catalysts

pp 50–59

G. Arzamendi, V.A. de la Peña O'Shea, M.C. Álvarez-Galván, J.L.G. Fierro, P.L. Arias, L.M. Gandía*

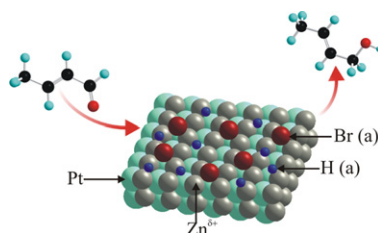


Methyl-ethyl-ketone (MEK) combustion on $\text{Pd}/\text{Al}_2\text{O}_3$ forms CO_2 and H_2O , but of MnO_x oxide promoters shift selectivity towards acetaldehyde methyl-vinyl-ketone and diacetyl.

Bromine-promoted PtZn is very effective for the chemoselective hydrogenation of crotonaldehyde

pp 60–65

Ewan Galloway, Marc Armbrüster, Kirill Kovnir, Mintcho S. Tikhov, Richard M. Lambert*

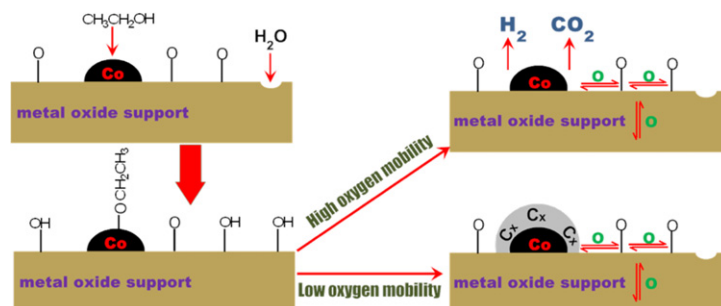


Adsorbed bromine species strongly promotes the intrinsic selectivity of the PtZn intermetallic catalysts for chemoselective hydrogenation of crotonaldehyde to crotyl alcohol.

Ethanol steam reforming over Co-based catalysts: Role of oxygen mobility

pp 66–74

Hua Song, Umit S. Ozkan*

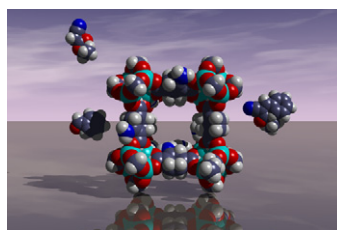


CeO₂ improves catalyst stability and reactivity for steam reforming predominantly because of its high oxygen mobility.

Amino-based metal-organic frameworks as stable, highly active basic catalysts

pp 75–87

Jorge Gascon*, Ugur Aktay, Maria D. Hernandez-Alonso, Gerard P.M. van Klink, Freek Kapteijn

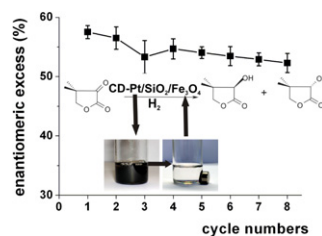


Metal organic frameworks (MOFs) with non-coordinated amino groups are shown to be stable solid basic catalysts. The performance of the IRMOF-3 catalysts demonstrates that the basicity of the aniline-like amino group is enhanced when incorporated inside the MOF structure.

Magnetically separable Pt catalyst for asymmetric hydrogenation

pp 88–93

Barbara Panella, Angelo Vargas, Alfons Baiker*

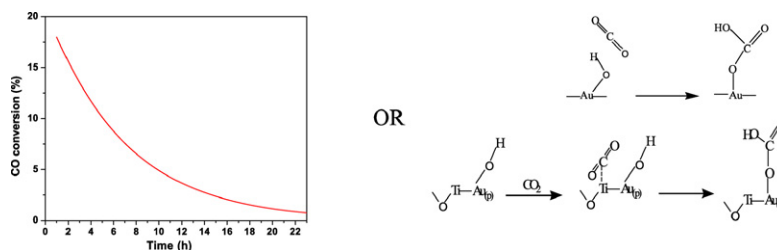


A chirally modified platinum catalyst supported on silica coated magnetite can be recovered by magnetic methods and its properties for asymmetric hydrogenation can be almost completely retained after several reaction cycles.

CO oxidation over titanate nanotube supported Au: Deactivation due to bicarbonate

pp 94–100

T.A. Ntho, J.A. Anderson, M.S. Scurrell*

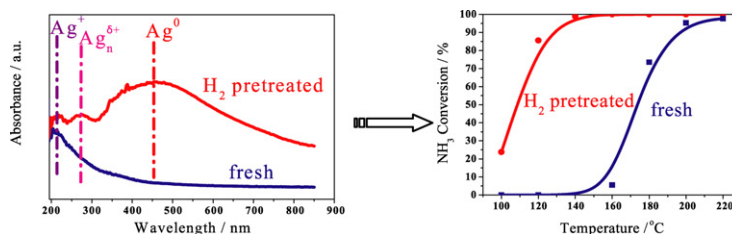


The formation of bicarbonate species on Au clusters on TiO₂ nanotubes causes deactivation during CO oxidation catalysis.

The role of silver species on Ag/Al₂O₃ catalysts for the selective catalytic oxidation of ammonia to nitrogen

pp 101–109

Li Zhang, Changbin Zhang, Hong He*

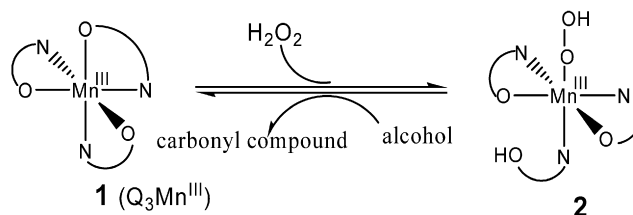


Various states of Ag species affected the low temperature activity of NH₃ oxidation over the Ag/Al₂O₃ catalysts significantly.

Selective oxidation of alcohols with hydrogen peroxide catalyzed by hexadentate binding 8-quinolinolato manganese(III) complexes

pp 110–115

Zhengpei Ye, Zaihui Fu*, Sheng Zhong, Fang Xie, Xiaoping Zhou, Fenglan Liu, Dulin Yin

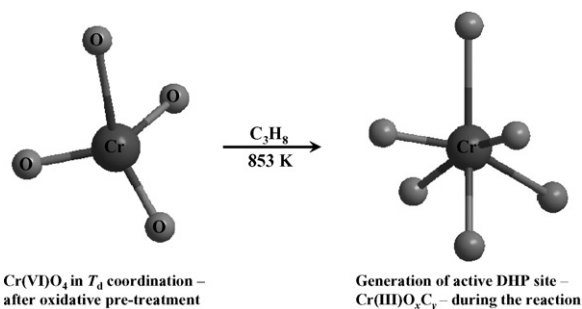


Hexadentate 8-quinolinolato Mn^{II} complexes are highly efficient catalysts for alcohol oxidation with aqueous H₂O₂ in acetone medium. A reasonable mechanism for the present catalytic system was proposed.

The nature of active chromium species in Cr-catalysts for dehydrogenation of propane: New insights by a comprehensive spectroscopic study

pp 116–128

M. Santhosh Kumar*, Nina Hammer, Magnus Rønning, Anders Holmen*, De Chen, John C. Walmsley, Gisle Øye



Active Cr sites for dehydrogenation of propane form *in situ* during reaction and that Cr is typically in (III) oxidation state.