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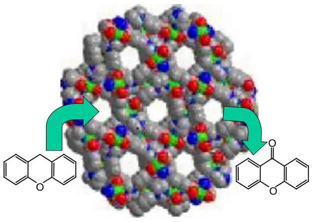
Contents

PRIORITY COMMUNICATION

Metal organic frameworks as efficient heterogeneous catalysts for the oxidation of benzylic compounds with *t*-butylhydroperoxide **pp 1–4**

Amarajothi Dhakshinamoorthy, Mercedes Alvaro, Hermenegildo Garcia *

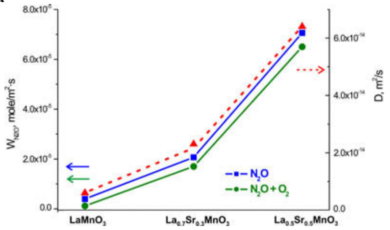


Iron and copper metal organic frameworks of 1,3,5-benzenetricarboxylate serve to oxidize benzylic compounds with *t*-butylhydroperoxide in acetonitrile under mild reaction conditions. MOFs act as heterogeneous catalysts and can be reused for consecutive runs.

REGULAR ARTICLES

Influence of oxygen mobility on catalytic activity of La–Sr–Mn–O composites in the reaction of high temperature N_2O decomposition **pp 5–13**

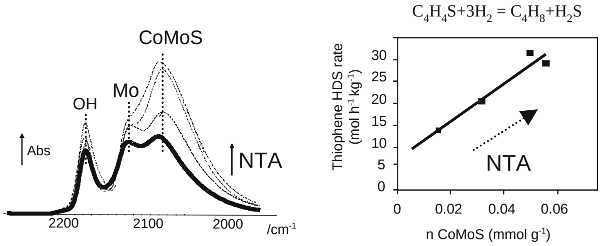
D.V. Ivanov *, E.M. Sadovskaya, L.G. Pinaeva, L.A. Isupova



Mechanism of oxygen exchange in single- and multiphase La–Sr–Mn–O samples was studied by steady-state isotopic transient kinetic analysis (900 °C). Strong correlation between oxygen mobility and the rate of N_2O decomposition was found.

Effect of NTA addition on the structure and activity of the active phase of cobalt-molybdenum sulfide hydrotreating catalysts **pp 14–23**

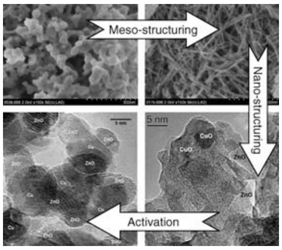
M.A. Lélias, P.J. Kooyman, L. Mariey, L. Oliviero, A. Travert, J. van Gestel, J.A.R. van Veen, F. Maugé *



Comparison of activity and spectroscopic data of the sulfide catalysts prepared with nitrilo triacetic acid (NTA) implies that the increase of Co-promoted sites accounts for catalytic activity enhancement, and evidences the creation of different kinds of active sites.

Meso- and nano-structuring of industrial Cu/ZnO/(Al_2O_3) catalysts pp 24–29

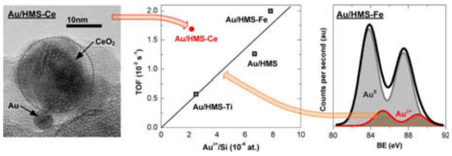
Malte Behrens



Industrial Cu/ZnO/Al_2O_3 catalysts are prepared via two hierarchical microstructure-directing steps: (i) meso-structuring of the precursor material upon ageing and (ii) nano-structuring of the oxide material upon calcination.

Enhancement of biphenyl hydrogenation over gold catalysts supported on Fe-, Ce- and Ti-modified mesoporous silica (HMS) pp 30–39

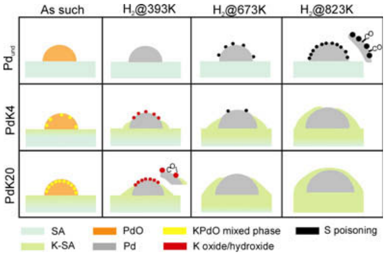
Pedro Castaño, T.A. Zepeda, B. Pawelec, Michiel Makkee, J.L.G. Fierro *



This paper describes the properties and kinetic performance of Au/HMS–M (M = [–], Ce, Ti and Fe) catalyst during the aromatic liquid hydrogenation. The trend of catalytic activity is linked with: (i) the higher ratio of positively charged metallic gold $Au^{\delta+}$/Si (XPS), and (ii) the higher stability of Au nanoparticles (HRTEM). A linear correlation between the activity of the catalysts and their ratio $Au^{\delta+}$/Si is observed; however, Au/HMS–Ce catalyst displays an enhanced activity due to the interaction Au–CeO_2 which favours the hydrogenation.

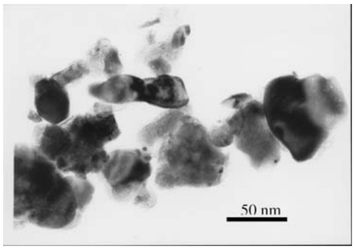
Influence of K-doping on a Pd/SiO_2–Al_2O_3 catalyst pp 40–49

R. Pellegrini, G. Leofanti, G. Agostini, L. Bertinetti, S. Bertarione, E. Groppo *, A. Zecchina, C. Lamberti



Liquid phase hydrogenation of α,β-unsaturated aldehydes over gold supported on iron oxides pp 50–56

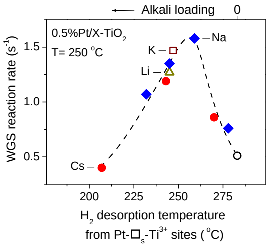
Jennifer Lenz, Betiana C. Campo, Mariana Alvarez, María A. Volpe *



In the liquid phase hydrogenation of crotonaldehyde and cinnamaldehyde, Au nanoparticles supported on α-Fe_2O_3 show enhanced selectivity toward the unsaturated alcohol.

Effects of alkali promotion of TiO_2 on the chemisorptive properties and water–gas shift activity of supported noble metal catalysts pp 57–66

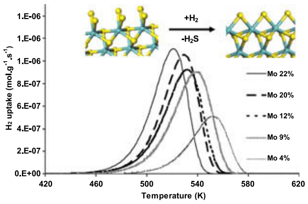
Paraskevi Panagiotopoulou, Dimitris I. Kondarides *



The water-gas shift activity of alkali-promoted Pt/X-TiO_2 catalysts (X = Li, Na, K, Cs) exhibits a volcano-type dependence on the chemisorption strength of Pt-$\square_s$-Ti^{3+} sites located at the metal-support interface.

Temperature-programed reduction of unpromoted MoS_2-based hydrodesulfurization catalysts: Experiments and kinetic modeling from first principles pp 67–77

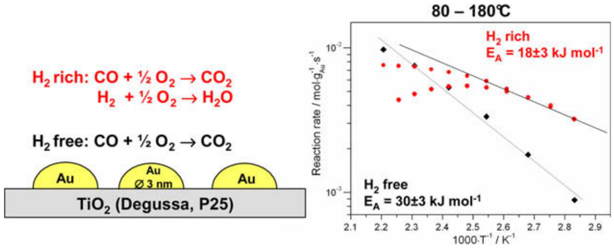
Nicolas Dinter, Marko Rusanen, Pascal Raybaud, Slavik Kasztelan, Pedro da Silva, Hervé Toulhoat *



Temperature-programed reduction profiles of presulfided MoS_2/γ-Al_2O_3 hydrotreating catalysts reveal Mo content dependant shapes and peak temperatures: a theoretical interpretation based on first principles is provided.

Activity, stability, and deactivation behavior of supported Au/TiO_2 catalysts in the CO oxidation and preferential CO oxidation reaction at elevated temperatures pp 78–88

Yvonne Denkwitz, Birgit Schumacher, Gabriela Kučerová, R. Jürgen Behm *



The mechanisms governing the oxidation of CO on Au/TiO_2 catalysts, both in the absence of H_2 and in H_2-rich gas mixtures, the deactivation behavior and the apparent activation barrier for CO oxidation over these catalysts at elevated temperatures, in the range 80–180 °C, were investigated. Distinct temperature effects were observed, they are discussed in a molecular picture.

RESEARCH NOTE

Promoting effect of Mo on the hydrogenolysis of tetrahydrofurfuryl alcohol to 1,5-pentanediol over Rh/SiO_2 pp 89–92

Shuichi Koso, Naoyuki Ueda, Yasunori Shinmi, Kazu Okumura, Tokushi Kizuka, Keiichi Tomishige *

Selective hydrogenolysis of tetrahydrofurfuryl alcohol to 1,5-pentanediol was catalyzed by Rh–MoO_x/SiO_2 catalysts. Biomass-derived tetrahydrofurfuryl alcohol is selectively converted to 1,5-pentanediol by Rh–MoO_x/SiO_2-catalyzed hydrogenolysis. The catalysts can be reused without loss of activity and selectivity.