



ELSEVIER

Catalysis Today 75 (2002) XVII–XX



www.elsevier.com/locate/cattod

Contents of Volume 75

Vol. 75, Nos. 1–4

Environmental Catalysis: A Step Forward

Guest Editors: G. Centi, P. Ciambelli, S. Perathoner and P. Russo

Preface	1
Environmental catalysis: trends and outlook G. Centi, P. Ciambelli, S. Perathoner and P. Russo	17
Novel commercial applications	
An overview about Engelhard approach to non-standard environmental catalysis M. Berndt and P. Landri	17
Water treatments	
Catalytic wet air oxidation of butyric acid solutions using carbon-supported iridium catalysts H.T. Gomes, J.L. Figueiredo and J.L. Faria	23
Catalytic wet air oxidation of ammonia over M/CeO ₂ catalysts in the treatment of nitrogen-containing pollutants J. Barbier Jr., L. Oliviero, B. Renard and D. Duprez	29
Copper–platinum catalysts prepared and characterized by electrochemical methods for the reduction of nitrate and nitrite S. Kerkeni, E. Lamy-Pitara and J. Barbier	35
Catalytic denitrification of water with palladium-based catalysts supported on activated carbons L. Lemaignen, C. Tong, V. Begon, R. Burch and D. Chadwick	43
New insight in the solid state characteristics, in the possible intermediates and on the reactivity of Pd–Cu and Pd–Sn catalysts, used in denitrification of drinking water M.J. Chollier-Brym, R. Gavagnin, G. Strukul, M. Marella, M. Tomaselli and P. Ruiz	49
Catalytic hydrotreatment of water contaminated by chlorinated aromatics F. Murena and F. Gioia	57
Hydrotreating processes for catalytic abatement of water pollutants Y. Matatov-Meytal and M. Sheintuch	63
Catalytic conversion of MTBE to biodegradable chemicals in contaminated water G. Centi, A. Grande and S. Perathoner	69
Photocatalytic processes	
Hybrid processes coupling photocatalysis and membranes for degradation of organic pollutants in water R. Molinari, M. Borgese, E. Drioli, L. Palmisano and M. Schiavello	77
Photocatalytic degradation of organic compounds in aqueous systems by transition metal doped polycrystalline TiO ₂ A. Di Paola, E. García-López, S. Ikeda, G. Marcì, B. Ohtani and L. Palmisano	87

Removal of cyanides in wastewater by supported TiO ₂ -based photocatalysts J. Aguado, R. van Grieken, M.J. López-Muñoz and J. Marugán	95
Clean refinery	
Heterogeneous basic catalysts as alternatives to homogeneous catalysts: reactivity of Mg/Al mixed oxides in the alkylation of <i>m</i> -cresol with methanol M. Bolognini, F. Cavani, D. Scagliarini, C. Flego, C. Perego and M. Saba	103
Oxidation of mercaptans in light oil sweetening by cobalt(II) phthalocyanine–hydrotalcite catalysts I. Chatti, A. Ghorbel, P. Grange and J.M. Colin	113
Non-corrosive and chlorine-free isomerisation process under supercritical conditions B. Sander, M. Thelen and B. Kraushaar-Czarnetzki	119
Mesoporous catalysts for the synthesis of clean diesel fuels by oligomerisation of olefins R. Catani, M. Mandreoli, S. Rossini and A. Vaccari	125
Producing a high-quality synthetic steamcracker feedstock from different aromatic model components of pyrolysis gasoline on bifunctional zeolite catalysts A. Raichle, Y. Traa and J. Weitkamp	133
Fuel Cells	
Oxidative reforming of biomass derived ethanol for hydrogen production in fuel cell applications V. Pierro, V. Klouz, O. Akdim and C. Mirodatos	141
Production of hydrogen for fuel cells by reformation of biomass-derived ethanol A.N. Fatsikostas, D.I. Kondarides and X.E. Verykios	145
A comparative study of Pt/ γ -Al ₂ O ₃ , Au/ α -Fe ₂ O ₃ and CuO–CeO ₂ catalysts for the selective oxidation of carbon monoxide in excess hydrogen G. Avgouropoulos, T. Ioannides, Ch. Papadopoulou, J. Batista, S. Hocevar and H.K. Matralis	157
Gold, silver and copper catalysts supported on TiO ₂ for pure hydrogen production F. Bocuzzi, A. Chiorino, M. Manzoli, D. Andreeva, T. Tabakova, L. Ilieva and V. Iadakiev	169
Eco-efficient and sustainable chemistry processes	
Catalysis and fine chemistry J. Barrault, Y. Pouilloux, J.M. Clacens, C. Vanhove and S. Bancquart	177
The effect of reaction conditions on the oxidation of veratryl alcohol catalyzed by cobalt salen-complexes K. Kervinen, P. Lahtinen, T. Repo, M. Svahn and M. Leskelä	183
Selective hydroxylation of phenol employing Cu–MCM-41 catalysts L. Noreña-Franco, I. Hernandez-Perez, J. Aguilar-Pliego and A. Maubert-Franco	189
Condensation of aldehydes for environmentally friendly synthesis of 2-methyl-3-phenyl-propanal by heterogeneous catalysis D. Tichit, B. Coq, S. Cerneaux and R. Durand	197
A new environmentally friendly method for the production of 2,3,5-trimethyl- <i>p</i> -benzoquinone O.A. Kholdeeva, N.N. Trukhan, M.P. Vanina, V.N. Romannikov, V.N. Parmon, J. Mrowiec-Białoń and A.B. Jarzębski .	203
New catalytic processes for a sustainable chemistry of cellulose production from wood biomass B.N. Kuznetsov, S.A. Kuznetsova, V.G. Danilov, I.A. Kozlov, V.E. Taraban'ko, N.M. Ivanchenko and N.B. Alexandrova	211
Detoxication of water containing 1,1-dimethylhydrazine by catalytic oxidation with dioxygen and hydrogen peroxide over Cu- and Fe-containing catalysts O.P. Pestunova, G.L. Elizarova, Z.R. Ismagilov, M.A. Kerzhentsev and V.N. Parmon	219
Selective catalytic reduction of N ₂ O and NO _x in a single reactor in the nitric acid industry R.W. van den Brink, S. Booneveld, M.J.F.M. Verhaak and F.A. de Brujin	227
Polymer reuse and conversion	
Catalytic degradation of polyethylene over SAPO-37 molecular sieve G.J.T. Fernandes, V.J. Fernandes Jr. and A.S. Araujo	233

Kinetic study of the catalytic cracking of polypropylene in a semibatch stirred reactor S.C. Cardona and A. Corma	239
Polymer waste recycling over “used” catalysts S. Ali, A.A. Garforth, D.H. Harris, D.J. Rawlence and Y. Uemichi	247
Catalytic conversion of low-density polyethylene using a continuous screw kiln reactor J. Aguado, D.P. Serrano, J.M. Escola and E. Garagorri	257
VOC and organic waste conversion	
Studies on the catalytic dechlorination and abatement of chlorided VOC: the cases of 2-chloropropane, 1,2-dichloropropane and trichloroethylene E. Finocchio, C. Pistarino, S. Dellepiane, B. Serra, S. Braggio, M. Baldi and G. Busca	263
A pilot plant study for catalytic decomposition of PCDDs/PCDFs over supported chromium oxide catalysts S.D. Yim, D.J. Koh and I.-S. Nam	269
Oxidation of unsymmetrical dimethylhydrazine over heterogeneous catalysts. Solution of environmental problems of production, storage and disposal of highly toxic rocket fuels Z.R. Ismagilov, M.A. Kerzhentsev, I.Z. Ismagilov, V.A. Sazonov, V.N. Parmon, G.L. Elizarova, O.P. Pestunova, V.A. Shandakov, Yu.L. Zuev, V.N. Eryomin, N.V. Pestereva, F. Garin and H.J. Veringa	277
Catalytic combustion	
Catalytic combustion for power generation R. Carroni, V. Schmidt and T. Griffin	287
Microemulsions in the preparation of highly active combustion catalysts J. Rymeš, G. Ehret, L. Hilaire, M. Boutonnet and K. Jirátová	297
Honeycomb-supported perovskite catalysts for high-temperature processes L.A. Isupova, G.M. Alikina, S.V. Tsybulya, A.N. Salanov, N.N. Boldyreva, E.S. Rusina, I.A. Ovsyannikova, V.A. Rogov, R.V. Bunina and V.A. Sadykov	305
Cu/ γ -Al ₂ O ₃ catalyst for the combustion of methane in a fluidized bed reactor M. Iamarino, R. Chirone, L. Lisi, R. Pirone, P. Salatino and G. Russo	317
Nitrogen oxides conversion	
NO _x removal in excess oxygen by plasma-enhanced selective catalytic reduction H. Miessner, K.-P. Francke, R. Rudolph and Th. Hammer	325
Influence of NH ₃ and NO oxidation on the SCR reaction mechanism on copper/nickel and vanadium oxide catalysts supported on alumina and titania S. Suárez, S.M. Jung, P. Avila, P. Grange and J. Blanco	331
Sulfuric acid formation over ammonium sulfate loaded V ₂ O ₅ –WO ₃ /TiO ₂ catalysts by DeNO _x reaction with NO _x G. Baltin, H. Köser and K.-P. Wendlandt	339
Analysis of the structural parameters controlling the temperature window of the process of SCR-NO _x by low paraffins over metal-exchanged zeolites Z. Sobálik, A. Vondrová, Z. Tvarůžková and B. Wichterlová	347
Why Cu ⁺ in ZSM-5 framework is active in DeNO _x reaction—quantum chemical calculations and IR studies E. Brochawik, J. Datka, B. Gil and P. Kozyra	353
Catalytic DeNO _x activity of cobalt and copper ions in microporous MeALPO-34 and MeAPSO-34 A. Frache, B. Palella, M. Cadoni, R. Pirone, P. Ciambelli, H.O. Pastore and L. Marchese	359
A new active zeolite structure for the selective catalytic reduction (SCR) of nitrogen oxides: ITQ7 zeolite. The influence of NO ₂ on this reaction A.E. Palomares, J.G. Prato and A. Corma	367
The catalytic activity of FeO _x /ZrO ₂ for the abatement of NO with propene in the presence of O ₂ S. Tutti, F. Pepe, D. Pietrogiacomi and V. Indovina	373
In situ FTIR study on NO reduction by C ₃ H ₆ over Pd-based catalysts M. Huuhtanen, T. Kolli, T. Maunula and R.L. Keiski	379

Support effects in Pt/TiO ₂ –ZrO ₂ catalysts for NO reduction with CH ₄ R. Mariscal, S. Rojas, A. Gómez-Cortés, G. Díaz, R. Pérez and J.L.G. Fierro	385
DeNO _x reactions on Cu-zeolites. Decomposition of NO, N ₂ O and SCR of NO by C ₃ H ₈ and CH ₄ on Cu-ZSM-5 and Cu-AITS-1 catalysts Z. Schay, L. Guczí, A. Beck, I. Nagy, V. Samuel, S.P. Mirajkar, A.V. Ramaswamy and G. Pál-Borbély	393
Investigation of the oxygen storage process on ceria- and ceria-zirconia-supported catalysts S. Bedrane, C. Descorme and D. Duprez	401
A catalytic NO _x reduction system using periodic steps, lean and rich operations T. Nakatsuji and V. Komppa	407
Studies on the deactivation of NO _x storage-reduction catalysts by sulfur dioxide Ch. Sedlmair, K. Seshan, A. Jentys and J.A. Lercher	413
Novel low temperature NO _x storage-reduction catalysts for diesel light-duty engine emissions based on hydrotalcite compounds G. Fornasari, F. Trifirò, A. Vaccari, F. Prinetto, G. Ghiotti and G. Centi	421
On the dynamic behavior of “NO _x -storage/reduction” Pt–Ba/Al ₂ O ₃ catalyst I. Nova, L. Castoldi, L. Lietti, E. Tronconi and P. Forzatti	431
A study of the behaviour of Pt supported on CeO ₂ –ZrO ₂ /Al ₂ O ₃ –BaO as NO _x storage–reduction catalyst for the treatment of lean burn engine emissions L.F. Liotta, A. Macaluso, G.E. Arena, M. Livi, G. Centi and G. Deganello	439
Diesel particulate abatement	
A novel diesel particulate converter H. Christensen and Z.S. Rak	451
Bench-scale demonstration of an integrated deSoot–deNO _x system M. Makkee, H.C. Krijnsen, S.S. Bertin, H.P.A. Calis, C.M. van den Bleek and J.A. Moulijn	459
Simultaneous removal of soot and nitrogen oxides from diesel engine exhausts M.L. Pisarello, V. Milt, M.A. Peralta, C.A. Querini and E.E. Miró	465
Performances of a catalytic foam trap for soot abatement P. Ciambelli, V. Palma, P. Russo and S. Vaccaro	471
Author Index	I
Subject Index	VII
Contents of volume 75	XVII
Previous Issues of Catalysis Today	XXI