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IN THIS ISSUE

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Cover

See Stephen A. Miller *et al.*, pp. 1768–1773.

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Inside cover

See Charles L. Liotta *et al.*, pp. 2147–2155.

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EDITORIAL

1672

Sustainable polymers: reduced environmental impact, renewable raw materials and catalysis

Michael Meier

Guest Editor Professor Michael Meier (Karlsruhe Institute of Technology, Germany) introduces the Green Chemistry themed issue on 'Sustainable polymers: reduced environmental impact, renewable raw materials and catalysis'.

Sustainable Polymers
reduced environmental impact
renewable raw materials
catalysis

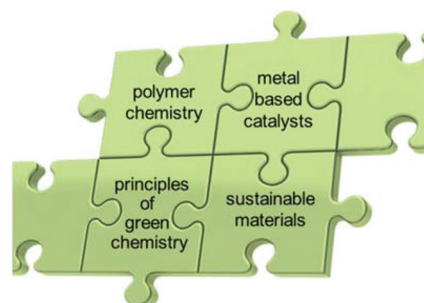
PERSPECTIVE

1673

Towards sustainable polymer chemistry with homogeneous metal-based catalysts

Kristin Schröder, Krzysztof Matyjaszewski,*
Kevin J. T. Noonan* and Robert T. Mathers*

A qualitative approach to maximizing sustainability in polymer chemistry.



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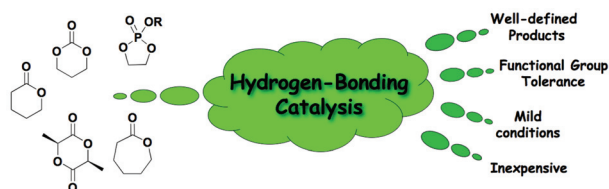
Registered Charity No. 207890.



1687

Coralie Thomas and Brigitte Bibal*

Hydrogen-bonding organocatalysts devoted to ROP has become a full-fledged class of sustainable catalysts.



1700

Rafael L. Quirino,* Thomas F. Garrison and Michael R. Kessler

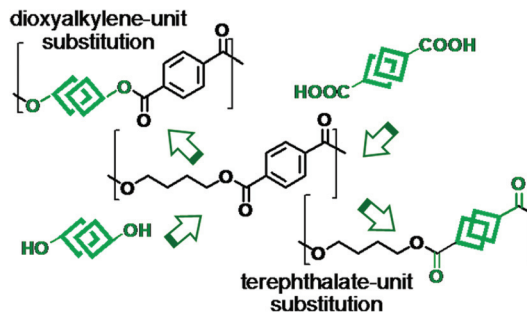
This review focuses on the progress made over the last decade, in the development of bio-based matrices for biocomposite applications.



1716

Sebastián Muñoz-Guerra,* Cristina Lavilla, Cristina Japu
and Antxon Martínez de Ilarduya

Carbohydrate-based bicyclic compounds, isohexides and diacetalized alditols and aldarates, are suitable polycondensation monomers to prepare partially renewable aromatic copolyesters displaying a satisfactory pattern of basic properties and enhanced T_g and hydrodegradability.

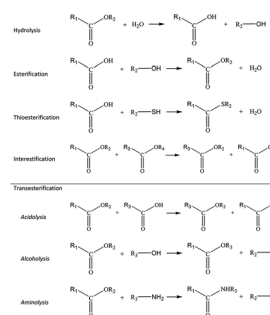


TUTORIAL REVIEW

1740

Chahinez Aouf,* Erwann Durand, Jérôme Lecomte,
Maria-Cruz Figueroa-Espinoza, Eric Dubreucq,
Hélène Fulcrand and Pierre Villeneuve

Lipases are versatile enzymes that can be used for various kinds of biocatalyzed reactions.



1755

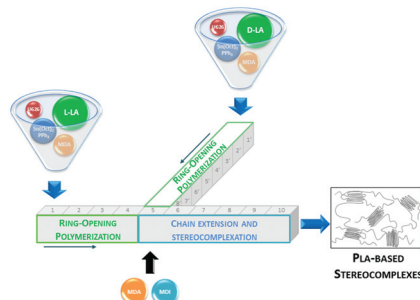


Branched polyethylene mimicry by metathesis copolymerization of fatty acid-based α,ω -dienes

Thomas Lebarbé, Mehdi Neqal, Etienne Grau, Carine Alfos and Henri Cramail*

Fully bio-based linear branched polyethylene mimics bearing ester functions were synthesized by metathesis copolymerization of linear and branched α,ω -dienes obtained from fatty acid derivatives.

1759

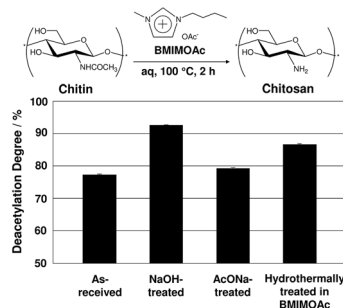


Synthesis of melt-processable PLA-based stereocomplexes through a sustainable melt-approach

Rindra Ramy-Ratirison,* Valérie Lison, Jean-Marie Raquez,* Emmanuel Duquesne and Philippe Dubois

Poly lactide stereocomplexes (PLAsc) encompass renewability, good thermo-mechanical properties and high thermal stability.

1764

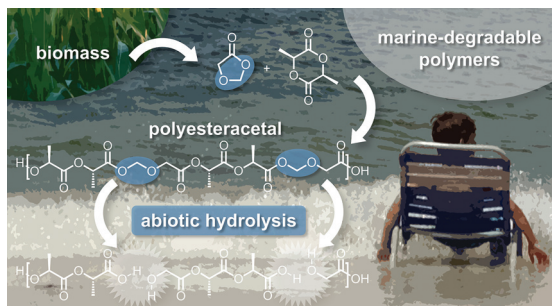


Facile enhancement of the deacetylation degree of chitosan by hydrothermal treatment in an imidazolium-based ionic liquid

Daisuke Ishii,* Chikara Ohashi and Hisao Hayashi

We propose a facile and efficient deacetylation method of chitosan using 1-butyl-3-methylimidazolium acetate (BMIMOAc) as the reaction medium and catalyst.

1768



Marine-degradable polylactic acid

Ryan T. Martin, Ludmila P. Camargo and Stephen A. Miller*

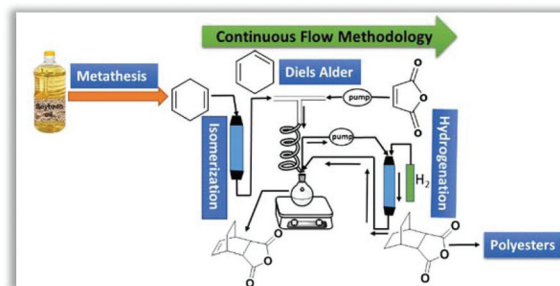
Incorporation of the acetal functional group into the main-chain of polylactic acid affords polyesteracetals that degrade readily in seawater.

1774

Streamlining the conversion of biomass to polyesters: bicyclic monomers with continuous flow

Deivasagayam Dakshinamoorthy, Stewart P. Lewis, Michael P. Cavazza, Aaron M. Hoover, David F. Iwig, Krishnan Damodaran and Robert T. Mathers*

Continuous flow methodology for the multi step synthesis of biomass derived aliphatic bicyclic-anhydride monomer. Polymerization with bio-based alcohols results in renewable polyesters with good thermal stability.

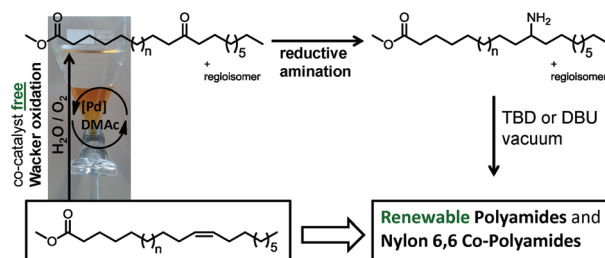


1784

Highly efficient oxyfunctionalization of unsaturated fatty acid esters: an attractive route for the synthesis of polyamides from renewable resources

Matthias Winkler and Michael A. R. Meier*

An efficient and environmentally benign strategy for the oxyfunctionalization of fatty acid methyl esters (FAMEs) employing molecular oxygen as an oxidizing agent is described.

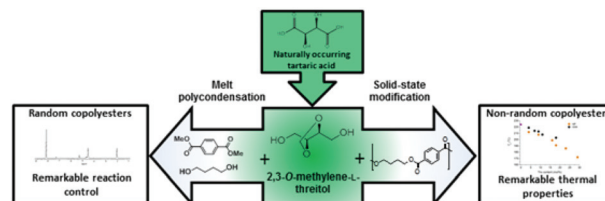


1789

Carbohydrate-based PBT copolyesters from a cyclic diol derived from naturally occurring tartaric acid: a comparative study regarding melt polycondensation and solid-state modification

Cristina Lavilla, Erik Gubbels, Abdelilah Alla, Antxon Martínez de Ilarduya, Bart A. J. Noordover,* Cor E. Koning and Sebastián Muñoz-Guerra

2,3-*O*-Methylene-*L*-threitol, a tartaric acid derivative, was used to prepare poly(butylene terephthalate) copolyesters by melt polycondensation and solid-state modification.

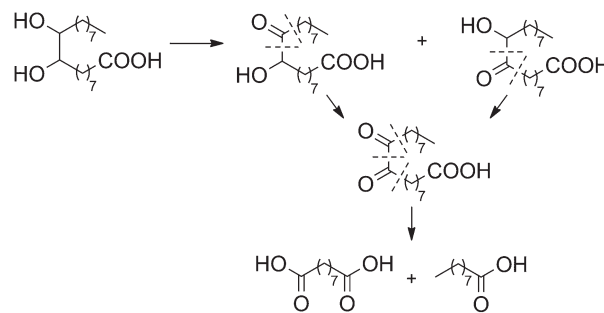


1799

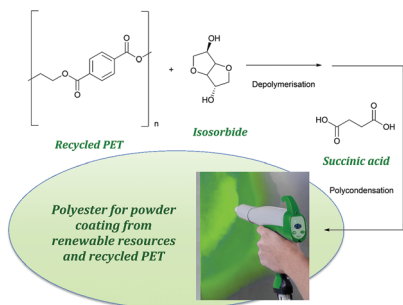
Insights into gold-catalyzed synthesis of azelaic acid

Anna Kulik,* Andreas Martin, Marga-Martina Pohl, Christine Fischer and Angela Köckritz*

The mechanism of the aerobic gold-catalyzed synthesis of azelaic acid and pelargonic acid and investigations of catalyst aging are presented.



1807

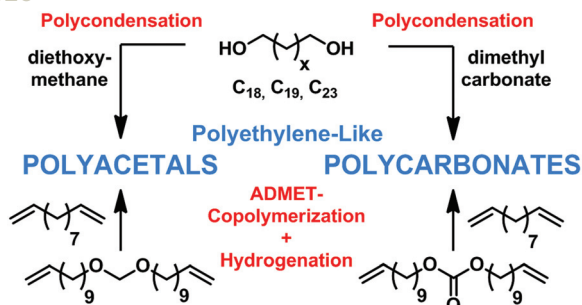


Sustainable polyesters for powder coating applications from recycled PET, isosorbide and succinic acid

C. Gioia, M. Vannini, P. Marchese, A. Minesso, R. Cavalieri, M. Colonna* and A. Celli

Polyesters for powder coatings have been obtained by chemical recycling of PET using monomers derived from renewable resources (isosorbide and succinic acid).

1816

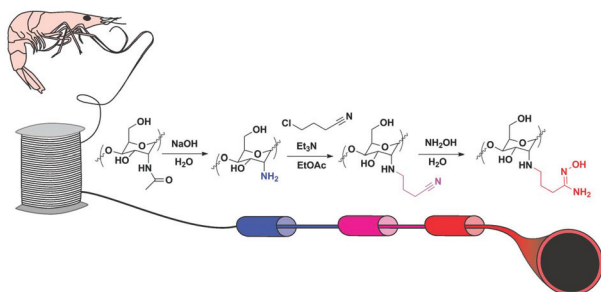


Physical properties and hydrolytic degradability of polyethylene-like polyacetals and polycarbonates

Patrick Ortmann, Ilona Heckler and Stefan Mecking*

The thermal and crystalline properties together with the hydrolytic degradability of polyethylene-like polyacetals and polycarbonates were investigated.

1828

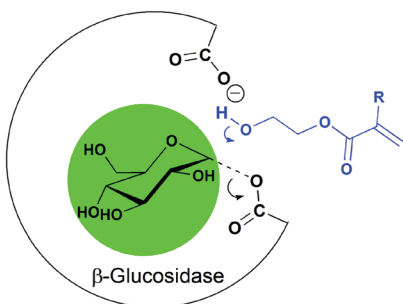


Surface modification of ionic liquid-spun chitin fibers for the extraction of uranium from seawater: seeking the strength of chitin and the chemical functionality of chitosan

Patrick S. Barber, Steven P. Kelley, Chris S. Griggs, Sergei Wallace and Robin D. Rogers*

A platform was developed for the surface modification of ionic liquid-spun chitin fibers, that provides the physical properties of chitin with chitosan's functional properties on the surface.

1837



Chemo-enzymatic synthesis route to poly(glucosyl-acrylates) using glucosidase from almonds

Wouter M. J. Kloosterman, Steven Roest, Siti R. Priatna, Erythrina Stavila and Katja Loos*

Our biocatalytic synthesis route using β -glucosidase yields mono-functionalized, anomERICALLY pure glucosyl-acrylates that could be polymerized by free radical polymerization.

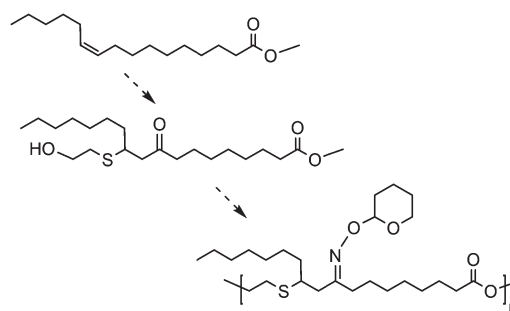
PAPERS

1847

Polyketoesters from oleic acid. Synthesis and functionalization

Maryluz Moreno, Gerard Lligadas, Juan C. Ronda, Marina Galià* and Virginia Cádiz

The thiol-Michael addition of mercaptoethanol to a methyl oleate enone derivative was investigated to obtain polyketoesters from vegetable oils that can be further functionalized by oxyamine coupling.

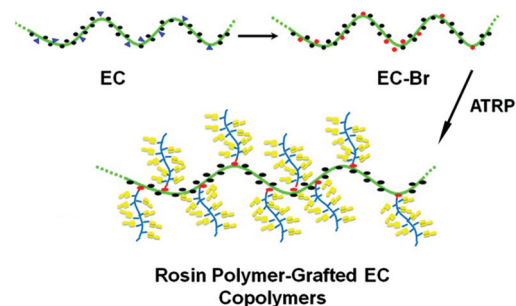


1854

Integration of renewable cellulose and rosin towards sustainable copolymers by "grafting from" ATRP

Juan Yu, Yupeng Liu, Xiaohuan Liu, Chunpeng Wang, Jifu Wang,* Fuxiang Chu* and Chuanbing Tang*

A strategy to combine renewable cellulose and rosin by controlled living polymerization.

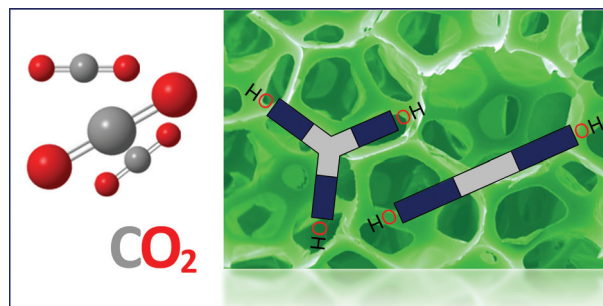


1865

Carbon dioxide (CO₂) as sustainable feedstock for polyurethane production

J. Langanke, A. Wolf,* J. Hofmann, K. Böhm, M. A. Subhani, T. E. Müller,* W. Leitner* and C. Gürtler*

A dream comes true: tailor-made polyethercarbonate polyols are synthesised from CO₂ and used in the production of polyurethane foams.



1871

Fabrication of bio-based epoxy–clay nanocomposites

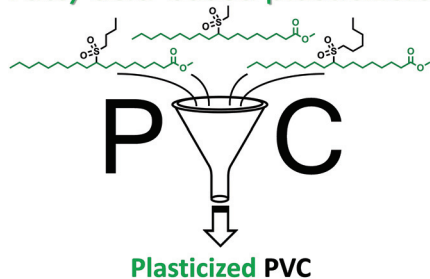
Rongpeng Wang, Thomas Schuman,* R. R. Vuppalapati and K. Chandrashekhara

Epoxy–clay nanocomposites derived from renewable soybean oils and organo modified montmorillonite clay were prepared.



1883

Fatty acid-based plasticizers

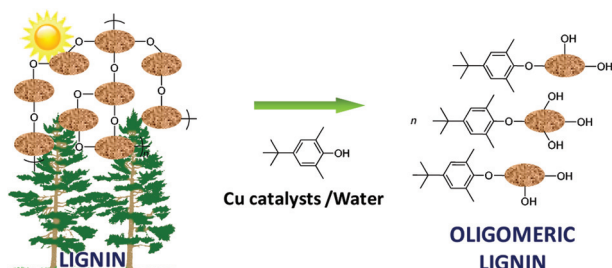


Sulfur-containing fatty acid-based plasticizers via thiol–ene addition and oxidation: synthesis and evaluation in PVC formulations

Lucas Montero de Espinosa, Andreas Gevers, Benjamin Woldt, Michael Graß and Michael A. R. Meier*

A new family of sulfur-containing plasticizers derived from fatty acids has been developed.

1897

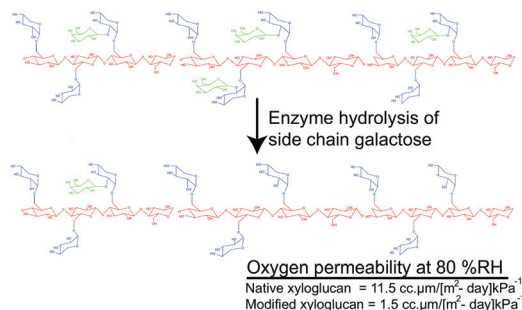


Chemical depolymerization of lignin involving the redistribution mechanism with phenols and repolymerization of depolymerized products

Sepa Nanayakkara, Antonio F. Patti and Kei Saito*

The chemical depolymerization of lignin involving the redistribution mechanism with phenols in water with a copper catalyst was demonstrated.

1904

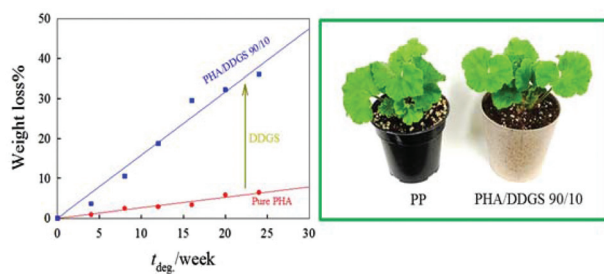


Water-soluble hemicelluloses for high humidity applications – enzymatic modification of xyloglucan for mechanical and oxygen barrier properties

Joby J. Kochumalayil* and Lars A. Berglund*

This study addresses the challenging problem of using water-soluble polysaccharides, which preserve mechanical and barrier performance at high relative humidity.

1911



Biodegradation behavior of bacterial-based polyhydroxyalkanoate (PHA) and DDGS composites

Samy A. Madbouly, James A. Schrader, Gowrishankar Srinivasan, Kunwei Liu, Kenneth G. McCabe, David Grewell, William R. Graves and Michael R. Kessler*

This manuscript provides information that will guide development of PHA composites that fulfil application requirements then degrade harmlessly in soil.

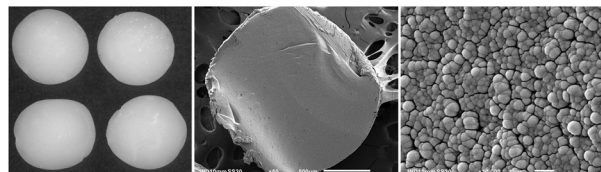
PAPERS

1921

Starch aerogel beads obtained from inclusion complexes prepared from high amylose starch and sodium palmitate

James A. Kenar,* Fred J. Eller, Frederick C. Felker, Michael A. Jackson and George F. Fanta

Unique gel forming properties of amylose-sodium palmitate inclusion complexes were used to prepare aerogels with high surface areas ($313\text{--}362\text{ m}^2\text{ g}^{-1}$).

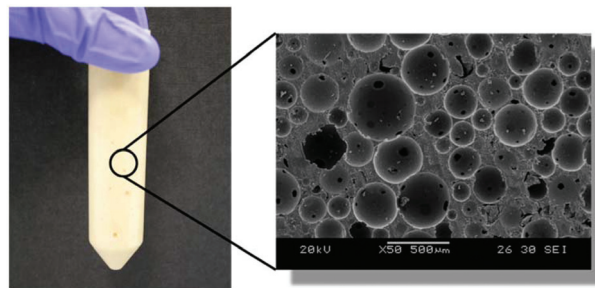


1931

Tailored for simplicity: creating high porosity, high performance bio-based macroporous polymers from foam templates

Thomas H. M. Lau, Ling L. C. Wong, Koon-Yang Lee and Alexander Bismarck*

High porosity, high performance macroporous biobased epoxy resins are produced by curing foam templates produced by mechanical frothing of a highly viscous epoxy resin.

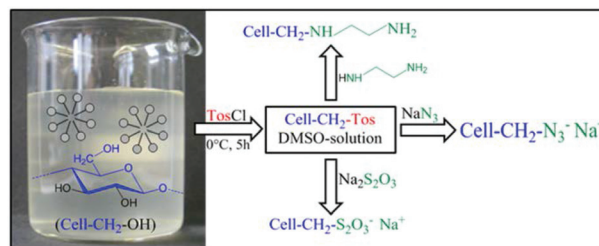


1941

Synthesis of soluble cellulose tosylates in an eco-friendly medium

S. Schmidt, T. Liebert and T. Heinze*

Tosylation of cellulose in the eco-friendly solvent aqueous NaOH-urea yields well soluble cellulose *p*-toluenesulfonic acid esters.

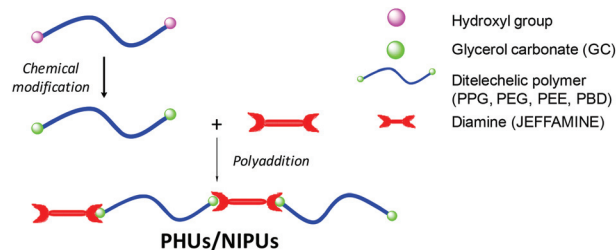


1947

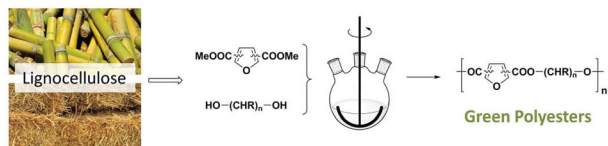
α,ω -Di(glycerol carbonate) telechelic polyesters and polyolefins as precursors to polyhydroxyurethanes: an isocyanate-free approach

L. Annunziata, A. K. Diallo, S. Fouquay, G. Michaud, F. Simon, J.-M. Brusson, J.-F. Carpentier and S. M. Guillaume*

Access to α,ω -di(glycerol carbonate) telechelic polyesters, polyethers and polydienes as precursors to polyhydroxyurethanes in a catalyst-free, isocyanate-free procedure.



1957

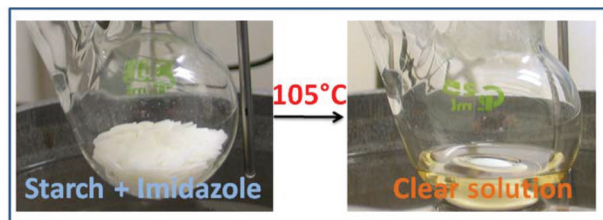


Biobased furandicarboxylic acids (FDCAs): effects of isomeric substitution on polyester synthesis and properties

Shanmugam Thiyagarajan, Willem Vogelzang, Rutger J. I. Knoop, Augustinus E. Frissen, Jacco van Haveren and Daan S. van Es*

Here we report the synthesis and characterization of a series of novel industrially relevant biobased furanic polyesters.

1967

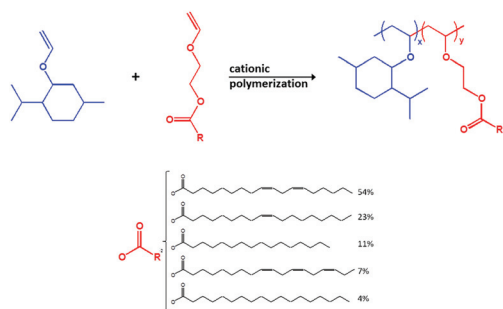


Molten imidazole – a starch solvent

Torsten Jordan, Susanne Schmidt, Tim Liebert and Thomas Heinze*

Molten imidazole is an efficient, stable and non-derivatising solvent for homogeneous starch chemistry to prepare derivatives with superior properties.

1974

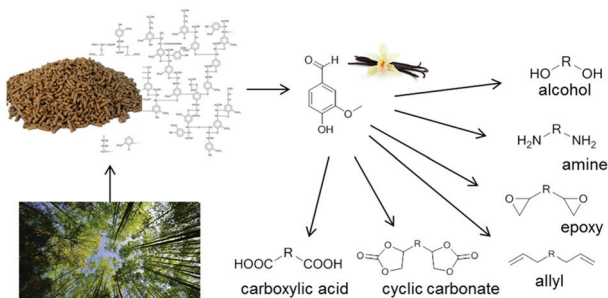


Bio-based poly(vinyl ether)s and their application as alkyd-type surface coatings

Harjyoti Kalita, Sermadurai Selvakumar, Anurad Jayasooriyamu, Shashi Fernando, Satyabrata Samanta, James Bahr, Samim Alam, Mukund Sibi, Jessica Vold, Chad Ulven and Bret J. Chisholm*

Photoswitchable fluorescent diarylethenes with extremely electron-donating substituents exhibit reversible photoactivatable, red-shifted emission and significant solvatochromism.

1987



Vanillin, a promising biobased building-block for monomer synthesis

Maxence Fache, Emilie Darroman, Vincent Besse, Rémi Auvergne, Sylvain Caillol* and Bernard Boutevin

We report the synthesis of new aromatic biobased building-blocks from vanillin, for their promising use in polymer synthesis.

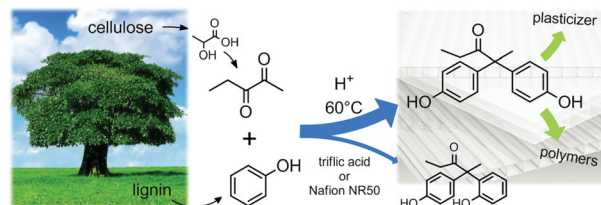
PAPERS

1999

Regioselective synthesis of renewable bisphenols from 2,3-pentanedione and their application as plasticizers

Wouter Schutyser, Steven-Friso Koelewijn, Michiel Dusselier, Stijn Van de Vyver, Joice Thomas, Feng Yu, Maria Josefina Carbone, Mario Smet, Peter Van Puyvelde, Wim Dehaen and Bert F. Sels*

2,3-Pentanedione (2,3-PD), a bio-based chemical derived from lactic acid, has the potential to serve as a precursor for the synthesis of novel bisphenols.

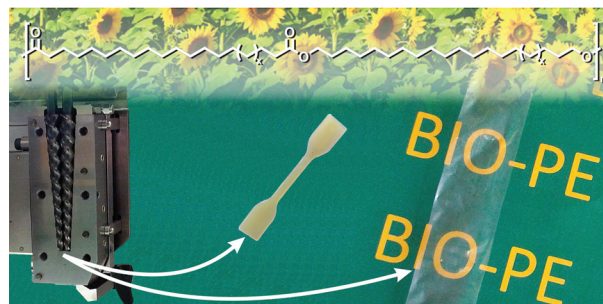


2008

Long-chain aliphatic polyesters from plant oils for injection molding, film extrusion and electrospinning

Florian Stempfle, Benjamin S. Ritter, Rolf Mülhaupt* and Stefan Mecking*

Materials properties of linear long-chain aliphatic polyesters based on common plant oils are presented.



PERSPECTIVES

2015

Hydroxymethylfurfural production from bioresources: past, present and future

Siew Ping Teong, Guangshun Yi and Yugen Zhang*

More than a hundred years of adventure, but not yet the end!



2027

Journey on greener pathways: from the use of alternate energy inputs and benign reaction media to sustainable applications of nano-catalysts in synthesis and environmental remediation

Rajender S. Varma

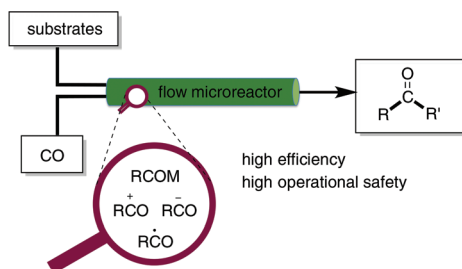
Research activity during the last decade is summarized, which describes greener and sustainable endeavours pertaining to organic synthesis and nanomaterials.



CRITICAL REVIEWS

2042

Carbonylation in Flow

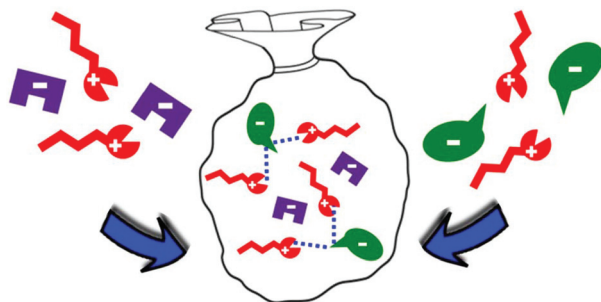


Carbonylation in microflow: close encounters of CO and reactive species

Takahide Fukuyama,* Takenori Totoki and Ilhyong Ryu*

This review describes a new greener wave of carbonylation reactions using a flow microreactor.

2051

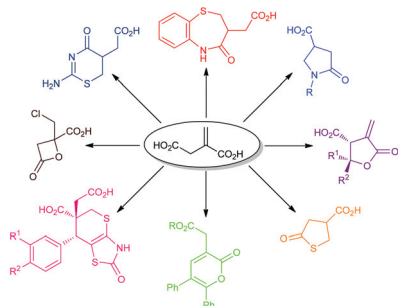


Mixing ionic liquids – “simple mixtures” or “double salts”?

Gregory Chatel, Jorge F. B. Pereira, Varun Debbeti, Hui Wang and Robin D. Rogers*

This critical review uses the available literature to question whether the same thinking used for organic solvent mixtures should be applied to the liquids obtained by the mixing of ionic liquids.

2084



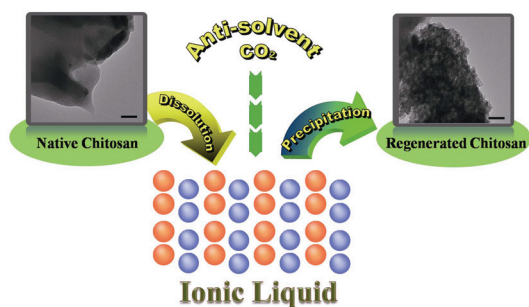
Heterocycle construction using the biomass-derived building block itaconic acid

Alexandra M. Medway and Jonathan Sperry*

This critical review discusses the diverse array of heterocyclic motifs that are available from the biomass-derived building block itaconic acid.

COMMUNICATIONS

2102

Precipitation of chitosan from ionic liquid solution by the compressed CO₂ anti-solvent method

Xiaofu Sun, Zhimin Xue and Tiancheng Mu*

Chitosan can be efficiently regenerated from ionic liquid by using compressed carbon dioxide.

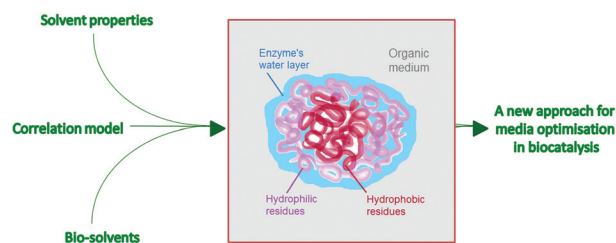
COMMUNICATIONS

2107

Biocatalysis in bio-derived solvents: an improved approach for medium optimisation

Giulia Paggiola, Andrew J. Hunt, Con R. McElroy, James Sherwood and James H. Clark*

An improved multi-parameter approach to the correlation of enzymatic activity and solvent properties is proposed.



2111

One-pot formal synthesis of biorenewable terephthalic acid from methyl coumalate and methyl pyruvate

Jennifer J. Lee and George A. Kraus*

Diverse functionalized aromatic compounds including DMT are constructed from captodative dienophiles with exclusive regioselectivity.

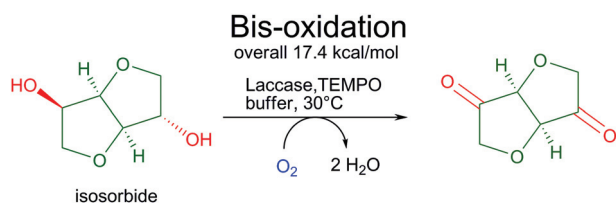


2117

Aerobic oxidation of isosorbide and isomannide employing TEMPO/laccase

Johannes Gross, Katharina Tauber, Michael Fuchs, Nina G. Schmidt, Aashrita Rajagopalan, Kurt Faber, Walter M. F. Fabian, Jan Pfeffer, Thomas Haas and Wolfgang Kroutil*

sec-Alcohols such as isosorbide were oxidised to the corresponding ketone with >99% conversion.

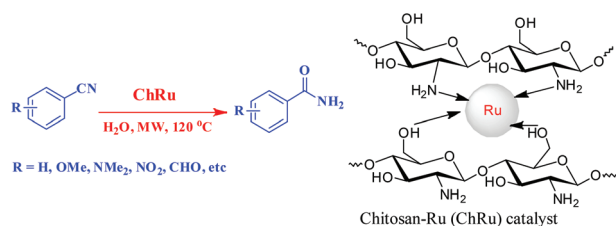


2122

Ruthenium on chitosan: a recyclable heterogeneous catalyst for aqueous hydration of nitriles to amides

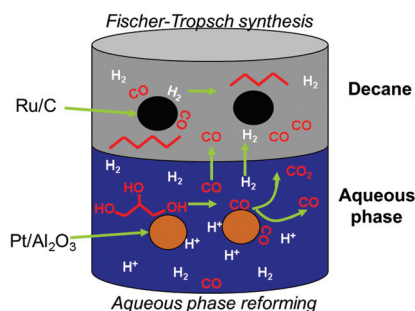
R. B. Nasir Baig, Mallikarjuna N. Nadagouda and Rajender S. Varma*

Ruthenium is immobilized over chitosan by simply stirring an aqueous suspension of chitosan with ruthenium chloride, and utilized for the oxidation of nitriles to amides; the hydration of nitriles occurs in high yield and excellent selectivity which proceeds under neutral conditions.



COMMUNICATIONS

2128

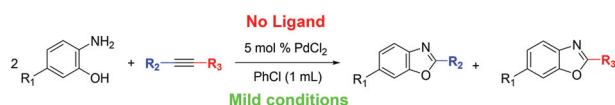


Mastering a biphasic single-reactor process for direct conversion of glycerol into liquid hydrocarbon fuels

V. V. Ordonsky* and A. Y. Khodakov

Combination of aqueous-phase reforming of glycerol and Fischer–Tropsch synthesis in a single biphasic reactor in the presence of an acid leads to formation of long chain alkanes.

2132

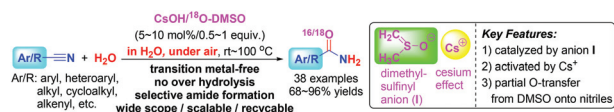


Palladium-catalyzed synthesis of benzoxazoles by the cleavage reaction of carbon–carbon triple bonds with *o*-aminophenol

Hou-Zhi Xie, Qi Gao, Ying Liang,* Heng-Shan Wang and Ying-Ming Pan*

The palladium catalyzed synthesis of benzoxazoles from simple alkynes and *o*-aminophenol by the cleavage reaction of carbon–carbon triple bonds.

2136

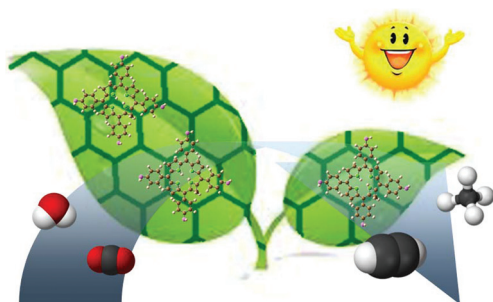


Efficient and selective nitrile hydration reactions in water catalyzed by an unexpected dimethylsulfinyl anion generated *in situ* from CsOH and DMSO

Haonan Chen, Wujie Dai, Yi Chen, Qing Xu,* Jianhui Chen, Lei Yu, Yajuan Zhao, Mingde Ye and Yuanjiang Pan*

Dimethylsulfinyl anions derived from CsOH–DMSO catalyzed nitrile hydration reactions in water to give the versatile amides *via* interesting DMSO-participating mechanisms.

2142



A carbon-based photocatalyst efficiently converts CO₂ to CH₄ and C₂H₂ under visible light

Tongshun Wu, Luyi Zou, Dongxue Han,* Fenghua Li, Qixian Zhang and Li Niu

Photocatalysts consisting of porphyrin and graphene have been designed and applied to reduce CO₂ to C₂H₂ under visible light, which is an excellent simulator of natural photosynthesis.

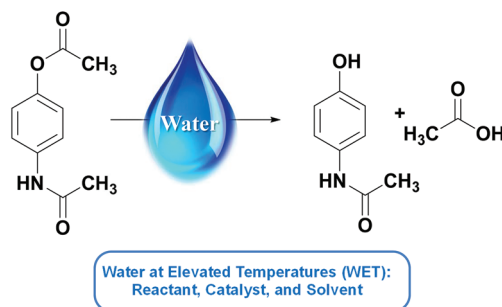
PAPERS

2147

Water at elevated temperatures (WET): reactant, catalyst, and solvent in the selective hydrolysis of protecting groups

Wilmarie Medina-Ramos, Mike A. Mojica, Elizabeth D. Cope, Ryan J. Hart, Pamela Pollet, Charles A. Eckert and Charles L. Liotta*

Water at elevated temperatures (WET) can act simultaneously as reactant, solvent, and catalyst in reaction processes.

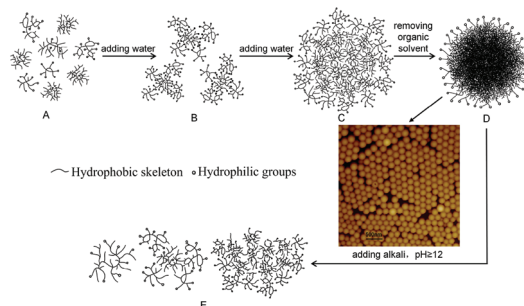


2156

Formation of uniform colloidal spheres from lignin, a renewable resource recovered from pulping spent liquor

Yong Qian, Yonghong Deng,* Xueqing Qiu,* Hao Li and Dongjie Yang

Alkali lignin, recovered from the pulping black liquor, was acetylated, and then utilized to prepare uniform colloidal spheres via self-assembly.

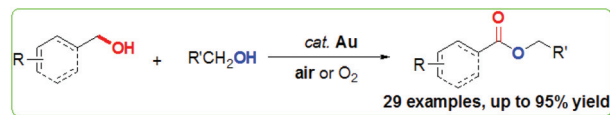


2164

Facile and efficient gold-catalyzed aerobic oxidative esterification of activated alcohols

Lianye Wang, Jun Li, Wen Dai, Ying Lv, Yi Zhang and Shuang Gao*

A facile and efficient methodology is presented for the direct oxidative esterification of alcohols with alcohols catalyzed by NaAuCl₄.

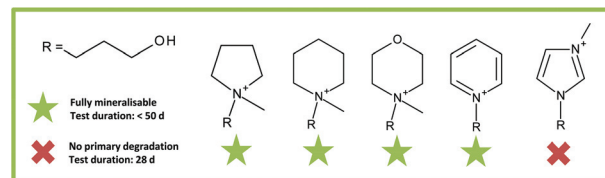


2174

Biodegradability of 27 pyrrolidinium, morpholinium, piperidinium, imidazolium and pyridinium ionic liquid cations under aerobic conditions

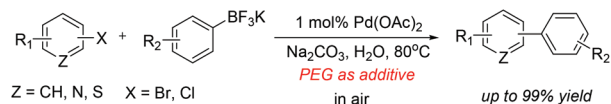
Jennifer Neumann, Stephanie Steudte, Chul-Woong Cho, Jorg Thöming and Stefan Stolte*

Within all investigated ionic liquid head groups, biodegradable representatives are found; however, methylimidazolium appears to be the most refractory one.



PAPERS

2185

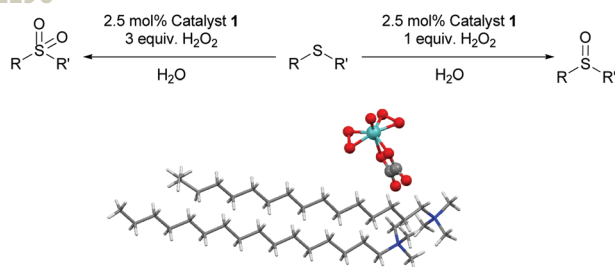


A highly efficient and recyclable ligand-free protocol for the Suzuki coupling reaction of potassium aryltrifluoroborates in water

Leifang Liu,* Yan Dong and Nana Tang

A highly efficient, recyclable and ligand-free protocol was developed for the Suzuki coupling reaction of potassium aryltrifluoroborates in water.

2190

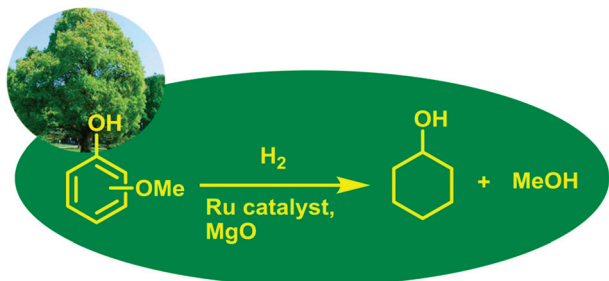


A molybdenum based metallomicellar catalyst for controlled and selective sulfoxidation reactions in aqueous medium

Rajan Deepan Chakravarthy, Venkatachalam Ramkumar and Dillip Kumar Chand*

A surfactant based molybdenum catalyst for eco-friendly sulfoxidation reactions in aqueous medium.

2197

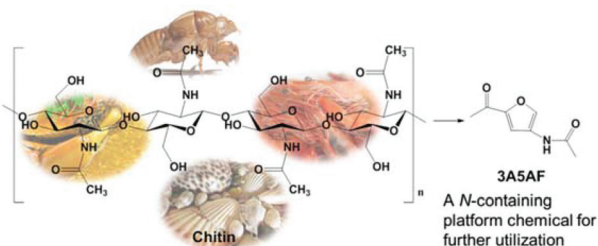


Selective production of cyclohexanol and methanol from guaiacol over Ru catalyst combined with MgO

Yoshinao Nakagawa,* Momoko Ishikawa, Masazumi Tamura and Keiichi Tomishige*

Methoxyphenols can be converted to cyclohexanol and methanol with H_2 over Ru/C combined with MgO.

2204



Direct conversion of chitin into a N-containing furan derivative

Xi Chen, Shu Ling Chew, Francesca M. Kerton and Ning Yan*

One pot conversion of chitin into 3A5AF opens up a new avenue for renewable, value added N-containing chemicals.

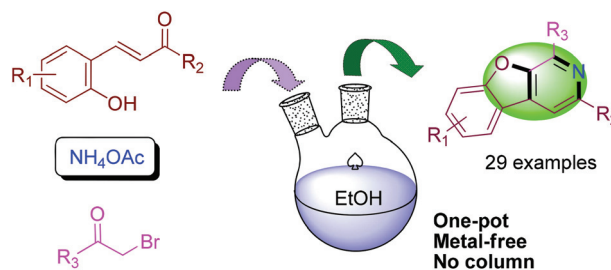
PAPERS

2213

Clean and efficient assembly of functionalized benzofuro[2,3-*c*]pyridines *via* metal-free one-pot domino reactions

Yin Rao, Zhexiong Li and Guodong Yin*

A clean and efficient method for the one-pot domino synthesis of functionalized benzofuro[2,3-*c*]pyridines from easily accessible 2-hydroxychalcones, α -bromo ketones and ammonium acetate has been developed.

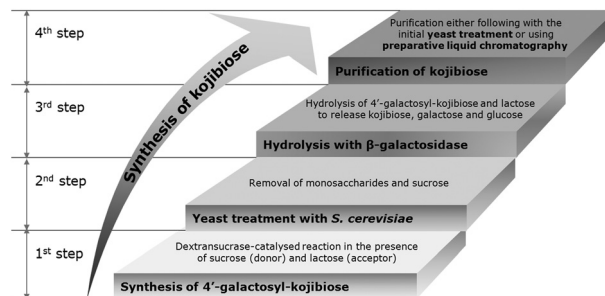


2219

A sustainable biotechnological process for the efficient synthesis of kojibiose

Marina Díez-Municio, Antonia Montilla, F. Javier Moreno* and Miguel Herrero

This work reports the optimization of a cost-effective and scalable process for the enzymatic synthesis of kojibiose (2-*O*- α -D-glucopyranosyl- α -D-glucose) from readily available and low-cost substrates such as sucrose and lactose.

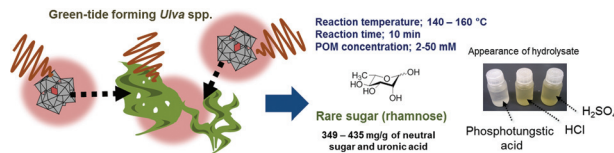


2227

Hydrolysis of green-tide forming *Ulva* spp. by microwave irradiation with polyoxometalate clusters

Shuntaro Tsubaki,* Kiriyo Oono, Masanori Hiraoka, Tadaharu Ueda, Ayumu Onda, Kazumichi Yanagisawa and Jun-ichi Azuma

Synergistic effect of microwave irradiation and polyoxometalate (POM) clusters showed higher hydrolytic capability than conventional mineral acids and external heating.

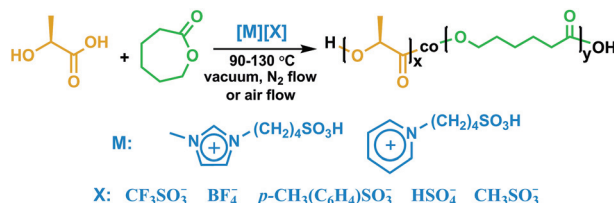


2234

A facile route to realize the copolymerization of L-lactic acid and ϵ -caprolactone: sulfonic acid-functionalized Brønsted acidic ionic liquids as both solvents and catalysts

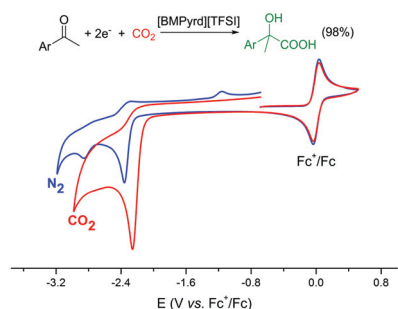
Qiaohong Peng, Khalid Mahmood, Ying Wu, Leli Wang, Yanyan Liang, Jianan Shen and Zhengping Liu*

Biodegradable copolymers of L-lactic acid and ϵ -caprolactone were prepared in SFBAIs: the effect of ILs and the mechanism.



PAPERS

2242

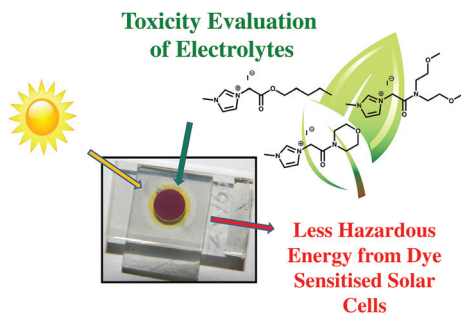


Electrocarboxylation of acetophenone in ionic liquids: the influence of proton availability on product distribution

Shu-Feng Zhao, Mike Horne,* Alan M. Bond and Jie Zhang*

High-yield electrocarboxylation of acetophenone can be achieved in dry [BMPyrd][TFSI].

2252

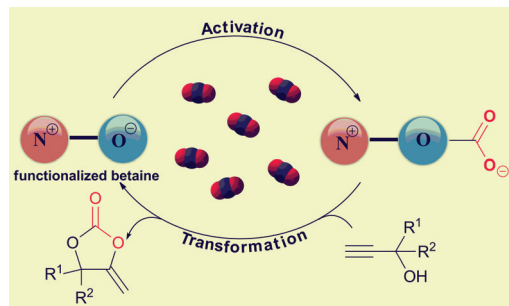


Low toxicity functionalised imidazolium salts for task specific ionic liquid electrolytes in dye-sensitised solar cells: a step towards less hazardous energy production

Mukund Ghavre, Owen Byrne, Lena Altes, Praveen K. Surolia, Marcel Spulak, Brid Quilty, K. Ravindranathan Thampi* and Nicholas Gathergood*

Tandem evaluation of ionic liquids and imidazolium salts toxicity and performance in dye sensitised solar cells is presented.

2266

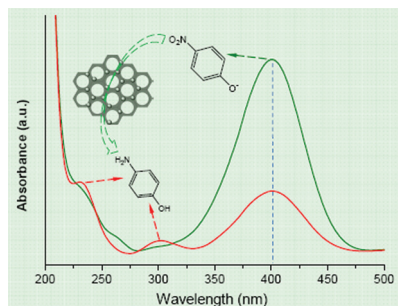


Alkoxide-functionalized imidazolium betaines for CO_2 activation and catalytic transformation

Yan-Bo Wang, Dong-Sheng Sun, Hui Zhou, Wen-Zhen Zhang and Xiao-Bing Lu*

Alkoxide-functionalized imidazolium betaines (AFIBs) functioned as organocatalysts for the coupling of CO_2 with propargylic alcohols to give valuable cyclic carbonates via AFIB- CO_2 adducts.

2273



Facile route fabrication of nickel based mesoporous carbons with high catalytic performance towards 4-nitrophenol reduction

Ying Yang,* Yang Ren, Chengjun Sun and Shijie Hao

Facilely fabricated Ni NPs homogeneously dispersed on mesoporous carbons show high activity and stability to degrade 4-nitrophenol in wastewater.

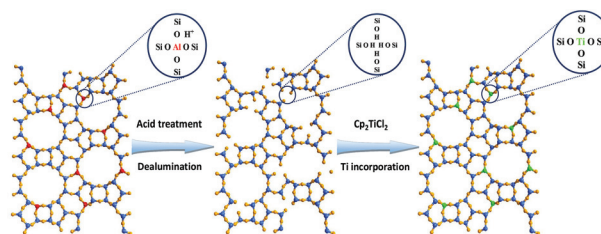
PAPERS

2281

A procedure for the preparation of Ti-Beta zeolites for catalytic epoxidation with hydrogen peroxide

Bo Tang, Weili Dai, Xiaoming Sun, Naijia Guan, Landong Li* and Michael Hunger

Ti-Beta zeolite prepared *via* a reproducible and scalable two-step post-synthesis strategy is a robust catalyst for the epoxidation of unsaturated ketones with hydrogen peroxide.



2292

A low temperature and solvent-free direct chemical synthesis of L1₀ FePt nanoparticles with size tailoring

X. C. Hu, E. Agostinelli, C. Ni, G. C. Hadjipanayis and A. Capobianchi*

High coercivity FePt L₁₀ nanoparticles were prepared by ball-milling in a solvent-free one pot synthesis at low temperature.

