



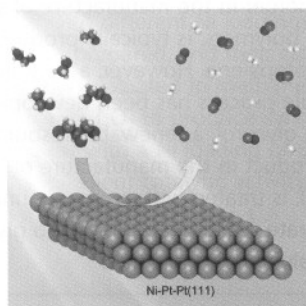
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## COVER PICTURE



The cover picture shows the production of hydrogen and carbon monoxide through reforming of oxygenates such as glycerol, ethylene glycol, and ethanol over a Ni monolayer on Pt(111) surface, designated Ni-Pt-Pt(111). This bimetallic surface exhibits stronger interactions with adsorbates as compared to unmodified Pt(111), increasing the activity for C–H and O–H scission reactions of interest in oxygenate reforming. In their Communication on page 524 ff., M. A. Barteau et al. report that the reforming activity of glycerol on the Ni-Pt-Pt(111) surfaces is increased as compared to that on Pt(111), Ni(111), and Pt-Ni-Pt(111) surfaces. The trend of glycerol reforming activity is similar to previous results for ethylene glycol and ethanol, with increasing activity as the surface *d* band center shifts closer to the Fermi level. The results demonstrate that the smaller oxygenates can be used as good models for reforming of larger, biomass-derived oxygenates.

## NEWS

Spotlights on our sister journals

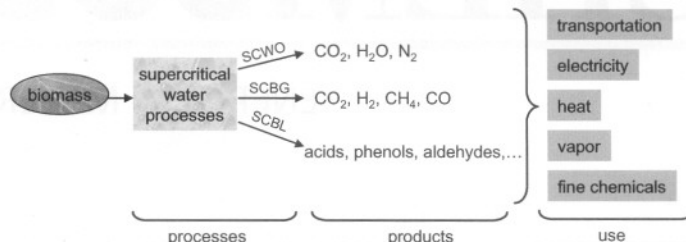
482 – 483

## REVIEWS

A. Loppinet-Serani,\* C. Aymonier,  
F. Cansell

486 – 503

### Current and Foreseeable Applications of Supercritical Water for Energy and the Environment



#### Critical times, supercritical measures:

The supercritical water oxidation (SCWO) process has been studied intensively during the past 15 years and proved efficient in decomposing organic matter. Armed with this know-how, researchers

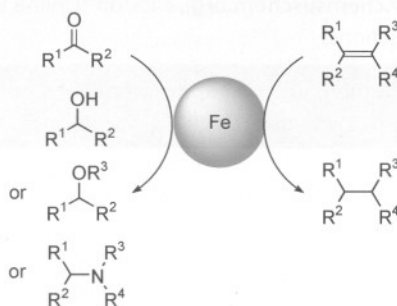
can now develop supercritical water biomass valorization for the production of gases and valuable chemicals (supercritical water biomass gasification (SCBG) or liquefaction (SCBL), respectively).

## HIGHLIGHTS

S. Gaillard, J.-L. Renaud\*

505 – 509

### Iron-Catalyzed Hydrogenation, Hydride Transfer, and Hydrosilylation: An Alternative to Precious-Metal Complexes?



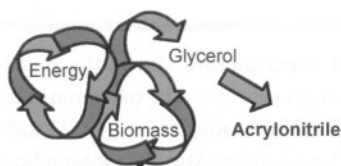
**The dawn of a new iron age?** Iron is one of the least expensive and non-toxic metals, however, its chemistry has remained less studied than that of precious metals. Recent advances in reduction chemistry using iron complexes as catalysts are reviewed and the great potential of this cheap but chic metal is illustrated in this Highlight.

## COMMUNICATIONS

M. O. Guerrero-Pérez, M. A. Bañares\*

511 – 513

### New Reaction: Conversion of Glycerol into Acrylonitrile



**A high-value conversion:** Acrylonitrile, a monomer in the manufacture of synthetic polymers, is typically produced from propylene. However, a new sustainable process has been developed in which glycerol, a renewable resource (by-product in the manufacture of biodiesel), is treated with ammonia under moderate reaction conditions to give this value-added product.

L. Lukyanova, R. Castangia,  
S. Franceschi-Messant, E. Perez,\*  
I. Rico-Lattes

514 – 518

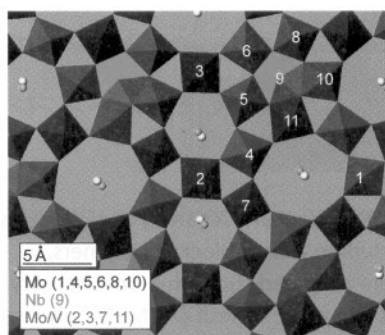
### Soft Microporous Green Materials from Natural Soybean Oil



**Sweet or savory?** Controlled porosity has been introduced in a gelled soybean oil by employing a particulate leaching method with sugar and salt templates. The materials resulting from unmodified natural soybean oil show

high porosity and important water-draining properties. These new biodegradable soft materials may be suitable for high-technology applications such as tissue engineering or pollutant scavenging.

**A friendly phase:** Bulk mixed-metal Mo-V-Te-Nb oxides are highly promising catalysts for the environmentally friendly selective ammoxidation of propane to acrylonitrile and oxidation of propane to acrylic acid. In this context, the crystal structures and catalytic behavior of Mo-V-Te-Nb-O, Mo-V-Te-O, and Mo-V-O M1 phase catalysts have been studied.

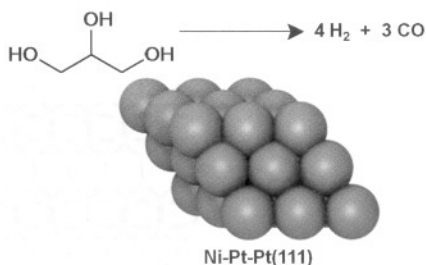


*N. R. Shiju, V. V. Guliants, S. H. Overbury, A. J. Rondinone\**

519–523

**Toward Environmentally Benign Oxidations: Bulk Mixed Mo-V-(Te-Nb)-O M1 Phase Catalysts for the Selective Ammoxidation of Propane**

**Scratching the surface:** The reactions of oxygenates such as glycerol are important for the production of H<sub>2</sub>. Temperature-programmed desorption experiments have revealed an increased production of H<sub>2</sub> on the Ni surface monolayer on Pt(111) (Ni-Pt-Pt(111)). Glycerol reforming activity trends are similar to previous results for ethylene glycol and ethanol, demonstrating that smaller oxygenates can be used as good models for reforming of larger, biomass-derived oxygenates.



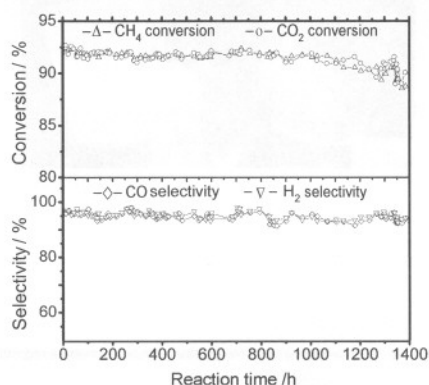
*O. Skoplyak, M. A. Barteau,\* J. G. Chen*

524–526

**Enhancing H<sub>2</sub> and CO Production from Glycerol Using Bimetallic Surfaces**

## FULL PAPERS

**Nickelback:** A series of Ni-based (Ni/SBA-15/Al<sub>2</sub>O<sub>3</sub>/FeCrAl) metal monolithic catalysts with different Ni loadings (3–16%) were prepared, and their catalytic activity was evaluated in methane reforming with CO<sub>2</sub> to produce syngas. The catalyst with a Ni loading of 8.0% displays excellent catalytic activity and stability over 1400 h at 800 °C.

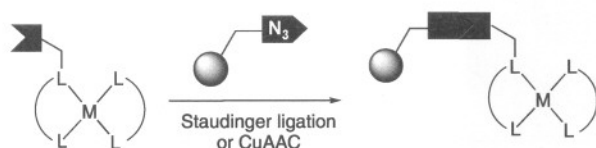


*K. Wang, X. Li, S. Ji,\* B. Huang, C. Li*

527–533

**Preparation of Ni-Based Metal Monolithic Catalysts and a Study of Their Performance in Methane Reforming with CO<sub>2</sub>**

**One resin, two strategies:** Polystyrene-supported Co<sup>II</sup> Schiff base complexes can be efficiently prepared using either Staudinger ligation or copper-catalyzed azide-alkyne cycloaddition (CuAAC) as



the key step. The complexes catalyze the aerobic oxidation of alcohols to aldehydes or ketones in high yields and with high selectivity in multiple cycles without loss of activity.

*S. Jain, O. Reiser\**

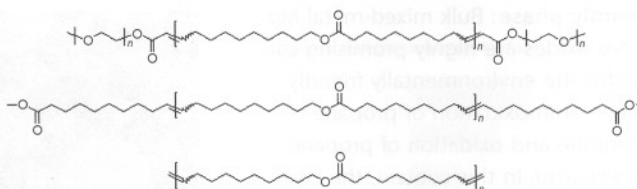
534–541

**Immobilization of Cobalt(II) Schiff Base Complexes on Polystyrene Resin and a Study of Their Catalytic Activity for the Aerobic Oxidation of Alcohols**

A. Rybak, M. A. R. Meier\*

542 – 547

## Acyclic Diene Metathesis with a Monomer from Renewable Resources: Control of Molecular Weight and One-Step Preparation of Block Copolymers



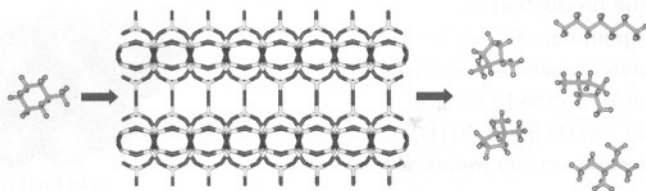
**As easy as ABA:** A variety of polyesters, including ABA triblock copolymers, were prepared through a one-step acyclic diene metathesis (ADMET) polymerization with undecyl undecenoate, a mo-

nomer from renewable resources. The molecular weights of the polymers could be controlled through the choice of metathesis catalyst as well as the amount of chain stopper used.

V. Calemma,\* A. Carati, C. Flego, R. Giardino, F. Gagliardi, R. Millini, G. Bellussi

548 – 557

## Ring Opening of Methylcyclohexane over Platinum-Loaded Zeolites



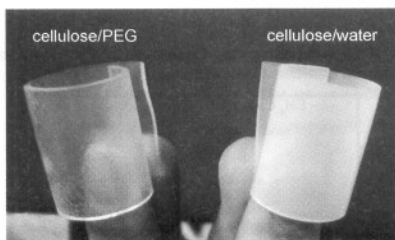
**Going platinum:** Extremely selective catalysts are necessary to improve the cetane number of products obtained from hydroconverting highly aromatic streams for use in fuel blending. In this

context, the activity of different Pt-loaded zeolites (Mordenite, ZSM-12, ZSM-5, ZSM-23) was investigated for the hydroconversion of methylcyclohexane.

S. Liang, J. Wu, H. Tian, L. Zhang,\* J. Xu\*

558 – 563

## High-Strength Cellulose/Poly(ethylene glycol) Gels



**It gels well:** Cellulose gel membranes swollen with low-molecular-weight polyethylene glycol (PEG; MW < 1000 g mol<sup>-1</sup>) were prepared and studied. A strong hydrogen-bonding interaction occurs between PEG and cellulose leading to a homogeneous structure, high mechanical strength and good transparency of the resulting gel membranes.

## CONFERENCE REPORTS

A. Jacobi von Wangelin\*

565 – 568

### Beyond Wishful Thinking and Sweet Dreams

Supporting information at [www.chemsuschem.org](http://www.chemsuschem.org) (see article for access details).



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\* Author to whom correspondence should be addressed.

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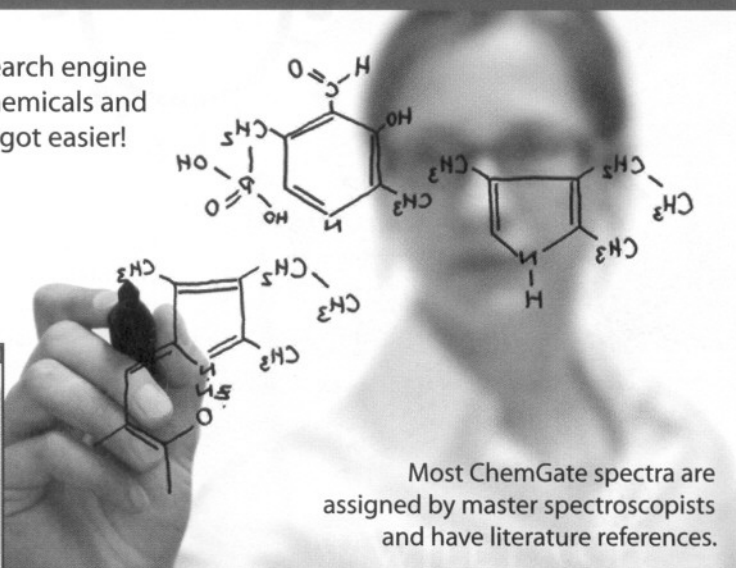
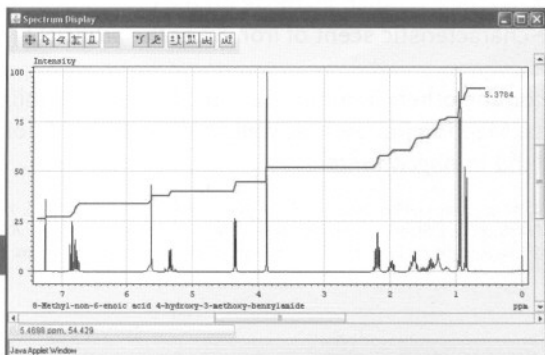
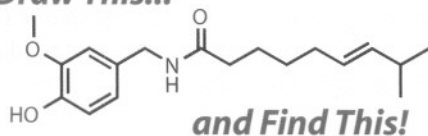
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