

Reaction Chemistry & Engineering

Bridging the gap between chemistry and chemical engineering
rsc.li/reaction-engineering

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2058-9883 CODEN RCEEBW 10(2) 269–490 (2025)



Cover

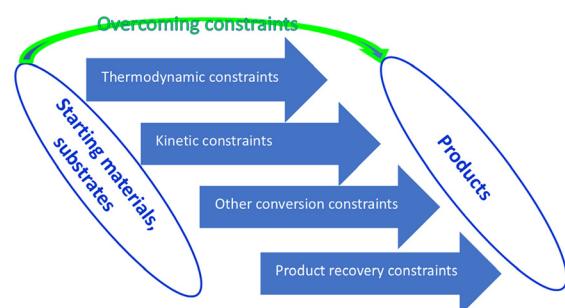
See Sho Kataoka *et al.*,
pp. 311–319.
Image reproduced by
permission of Sho Kataoka
from *React. Chem. Eng.*,
2025, 10, 311.

REVIEW

278

Overcoming bottlenecks towards complete biocatalytic conversions and complete product recovery

Roland Wohlgemuth*

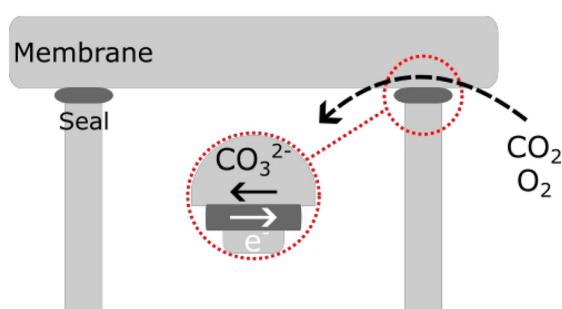


COMMUNICATIONS

294

Metallic sealants increase flux and change selectivity in supported molten-salt membranes

Liam A. McNeil, Guannan Chen, Wenting Hu, Evangelos I. Papaioannou, Ian S. Metcalfe and Greg A. Mutch*





Royal Society of Chemistry approved training courses

Explore your options.
Develop your skills.
Discover learning
that suits you.

**Courses in the classroom,
the lab, or online**

Find something for every
stage of your professional
development. Search our
database by:

- subject area
- location
- event type
- skill level

Members get at least 10% off

Visit rsc.li/cpd-training

**SAVE
10%**

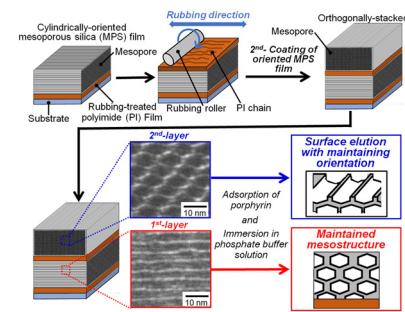


COMMUNICATIONS

300

Nanostructural investigation of orthogonally stacked mesoporous silica films and their reactivity with phosphate buffer

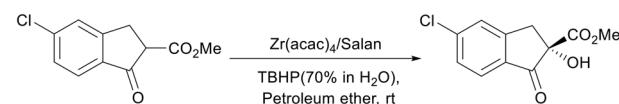
Reo Kimura, Yadong Chai, Rin Nakajima, Kenichiro Kosugi and Motohiro Tagaya*



306

Efficient and convenient synthesis of methyl (S)-5-chloro-2-hydroxy-1-oxo-2,3-dihydro-1*H*-indene-2-carboxylate: a key intermediate for (S)-indoxacarb using aqueous TBHP as oxidant

Yun Zhang, Yao Du, Yan-Biao Chen, Jia-Huan Nie, Yue Xiong, Bao-Dong Cui, Xue-Qing Mou, Ming-Qiang Zhou* and Yong-Zheng Chen*



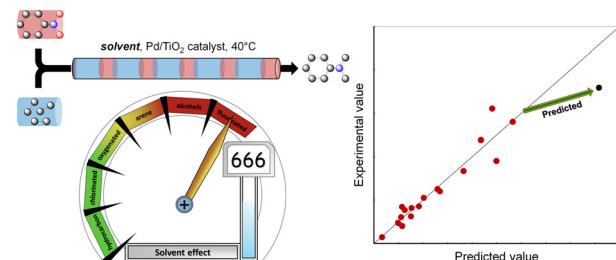
✓ Industrially feasible ✓ Purification by filtration
✓ TBHP (70% in H₂O) as oxidant ✓ Excellent yield and enantioselectivity

PAPERS

311

A solvent-selection strategy for the hydrogenation reaction inside a tubular-flow reactor through a statistical approach

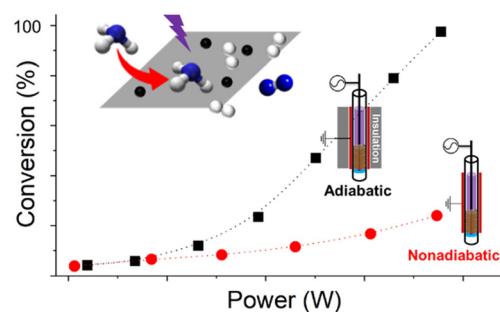
Benny Wahyudianto, Takehiro Yamaki, Nobuo Hara, Yoshihiro Takebayashi and Sho Kataoka*



320

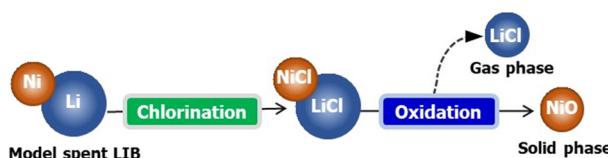
Ammonia decomposition over low-loading ruthenium catalyst achieved through “adiabatic” plasma reactor

Minhzur Rahman Shawon, Chinwendu Umeojiakor, Anthony Griffin, Jeffrey Aguinaga, Jiachun Wu, Derek Patton, Zhe Qiang, Hossein Toghiani and Yizhi Xiang*



PAPERS

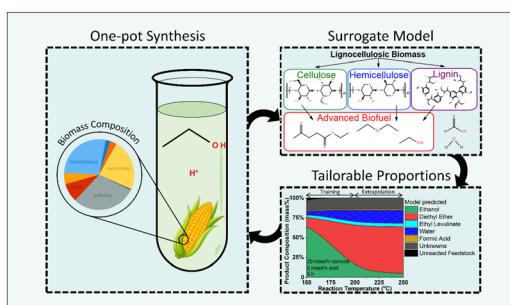
332



Selective separation of Li, Ni, Co and Mn from model spent Li ion battery cathode materials by dry processing using the combination of chlorination and oxidation

Yuuki Mochizuki and Naoto Tsubouchi*

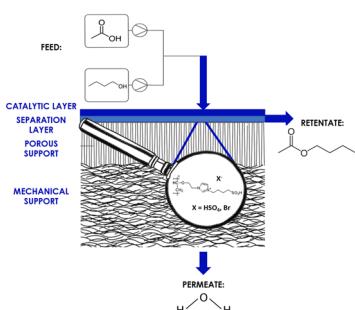
344



A hierarchical surrogate approach to biomass ethanolysis reaction kinetic modelling

Ailís O'Shea,* Conall McNamara, Prajwal Rao, Micheál Howard, Mohammad Reza Ghanni and Stephen Dooley

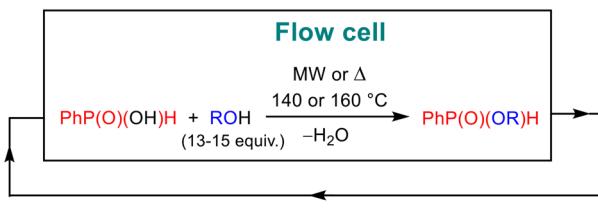
360



Acid-functionalized PVA composite membranes for pervaporation-assisted esterification

Julia Piotrowska, Christian Jordan, Kristof Stagel, Marco Annerl, Jakob Willner, Andreas Limbeck, Michael Harasek* and Katharina Bica-Schröder*

371



The scale-up of microwave flow syntheses by recirculation: the chlorine-free preparation of alkyl phenyl-H-phosphinates

József Schindler, Dorka Nagy, Rebeka Harján and György Keglevich*

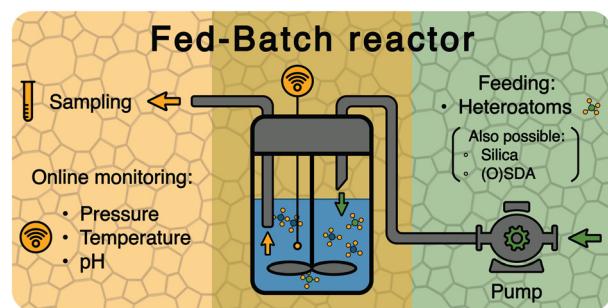


PAPERS

379

Monitoring and controlling zeolite synthesis via reactor-based solutions: a fed-batch strategy

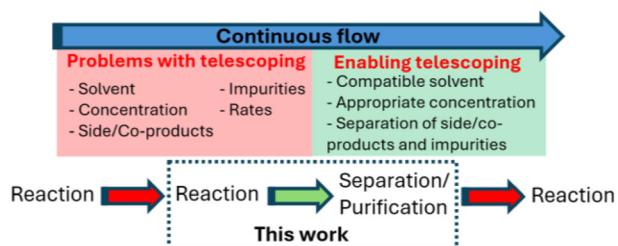
Amirhossein Javdani, Gleb Ivanushkin, Aron Deneyer and Michiel Dusselier*



392

Integrating continuous flow reaction and work-up: chiral amine resolution, separation and purification using a novel coalescing filter system

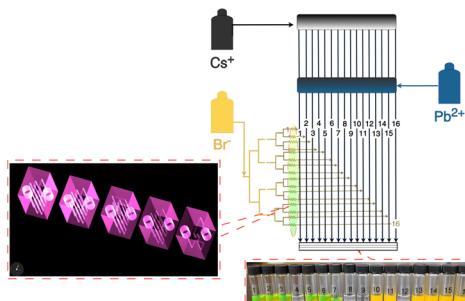
Bethan M. Rowley, Lisa A. Thompson, Luke A. Power, James Daglish, Emma Parks, James Birbeck, Steve Marsden, Nikil Kapur and A. John Blacker*



398

High-throughput reaction discovery for Cs-Pb-Br nanocrystal synthesis

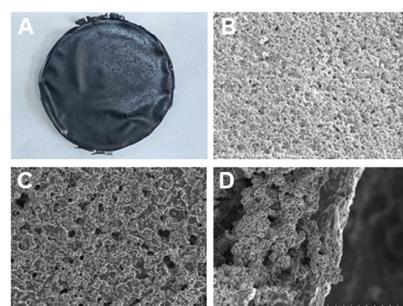
Ricki Chairil, Allison P. Forsberg, Richard L. Brutchey* and Noah Malmstadt*

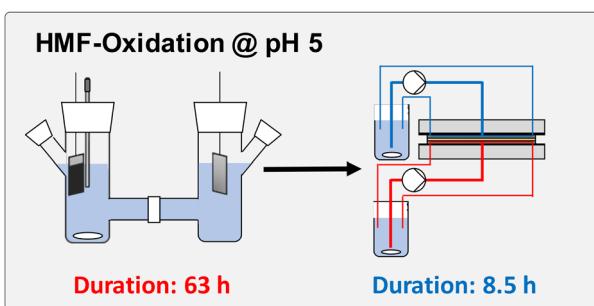


407

Carboxymethyl cellulose–poly-*m*-phenylenediamine composite membrane for gold recovery from e-waste

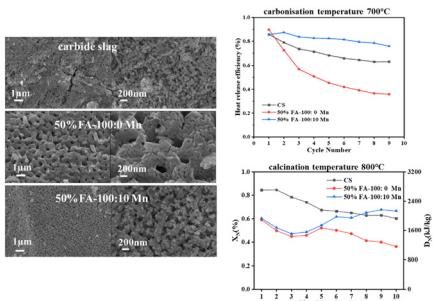
Zhiwei Huang, Yixin Yuan, Xinyi Li, Yiyang Li, Min Wang* and Zhuqing Wang*





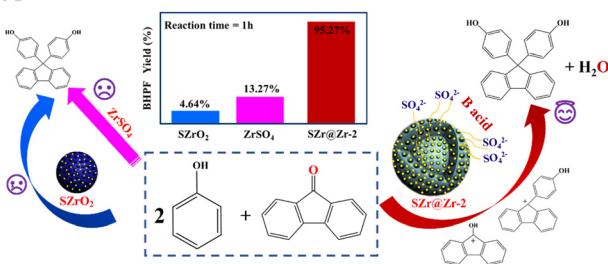
Usage of CoOOH electrodes in a flow channel reactor for the non-alkaline oxidation of 5-(hydroxymethyl)-furfural: an upscaling study

Marten Niklas Gey, Carl Schneider and Uwe Schröder*



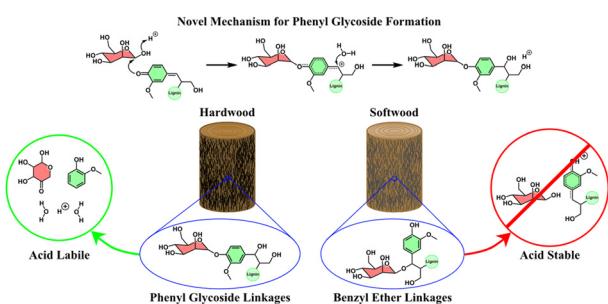
Energy-storage materials with stable structure through carbide slag modification by acid impregnation and manganese doping

Caiyun Gao,* Xiangli Liu, Yuan Zhang, Fei Jin and Dong Li



Modulating the crystal phase of Zr-based solid acid catalysts to boost the synthesis of 9,9-bis(4-hydroxyphenyl)fluorene

Jingjie Li, Lin Wang, Yanfeng Pu,* Yong Liu, Xiying Li, Renren Sun and Yahui Xiao*



Mechanistic insights into the formation and deconstruction of phenyl glycoside linkages in lignocellulosic biomass

Seth Beck and Samir H. Mushrif*

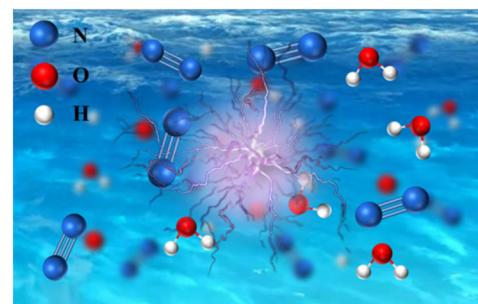


PAPERS

466

Competition between ammonia and nitrogen oxides during nitrogen fixation using N₂ and H₂O plasma without catalysis

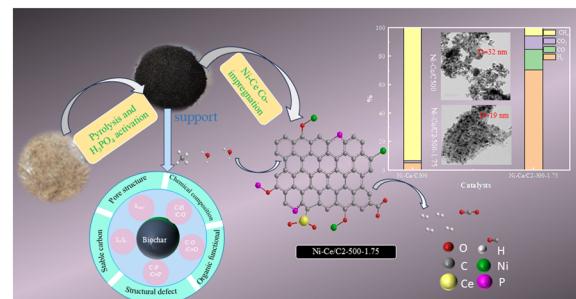
Yuanyuan Wang, Bing Sun,* Zhonglin Yu, Shaohua Sun, Jinglin Liu, Yanbin Xin and Xiaomei Zhu



477

Metallic nickel-anchored biochar with non-metallic heteroatom modification: remarkably effective catalyst for steam reforming of methane

Yu-e Zhao, Jinxiao Li,* Ao Xu, Yulong Liu, Minghui Lian, Jing Zhang, Hexiang Zhong, Chunhua Yang, Rensheng Song and Liwei Pan*



CORRECTION

488

Correction: Combination of near-infrared spectroscopy and a transient flow method for efficient kinetic analysis of the Claisen rearrangement

Yoshihiro Takebayashi,* Kiwamu Sue and Sho Kataoka