

Green Chemistry

Cutting-edge research for a greener sustainable future

rsc.li/greenchem

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 1463-9262 CODEN GRCHFJ 27(31) 9283-9608 (2025)



Cover
See Xiaoxia Li, Yanxu Chang *et al.*, pp. 9459–9479.

Image reproduced by permission of Xiaoxia Li from *Green Chem.*, 2025, **27**, 9459.



Inside cover
See Caoxing Huang, Kai Lan *et al.*, pp. 9480–9494.

Image reproduced by permission of Kai Lan from *Green Chem.*, 2025, **27**, 9480.

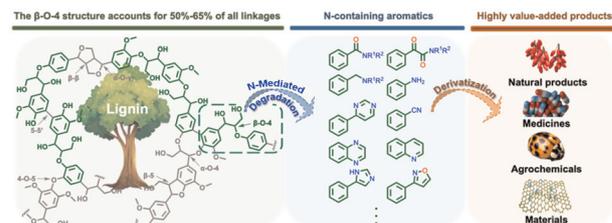
Sawdust image by AlasdairJames via iStock.

CRITICAL REVIEWS

9292

Synthesis of value-added N-containing aromatic products from lignins: a review

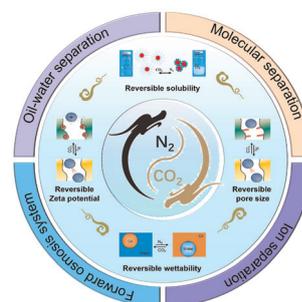
Zimin Zhong, Yaqiu Zhao, Xiaolin Luo,* Mengjun Xiao, Sibao Liu, Li Shuai* and Lu Chen*



9313

CO₂-responsive membrane separation systems: a green solution for efficient separations

Ling Lei, Haohao Liu, Yunxiang Bai, Chunfang Zhang, Mingjie Yin, Wentao Wang and Liangliang Dong*



**GOLD
OPEN
ACCESS**

EES Batteries

**Exceptional research on
batteries and energy storage**

Part of the EES family

**Join
in**

Publish with us

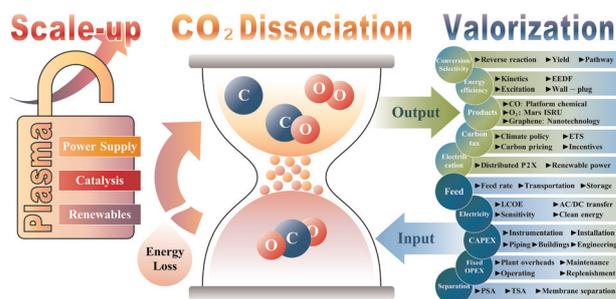
rsc.li/EESBatteries

CRITICAL REVIEWS

9332

Low-temperature plasma-enabled CO₂ dissociation: a critical analysis of plasma setups and conversion mechanisms toward scale-up valorization

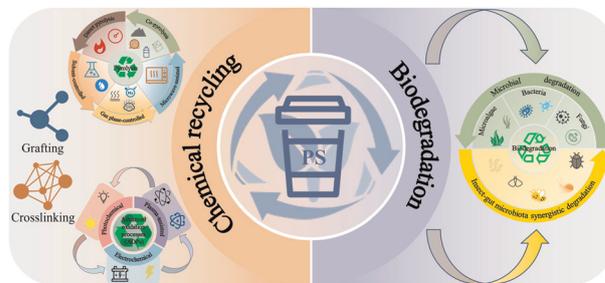
Yuxuan Xu, Yuan Gao, Liguang Dou, Dengke Xi, Chong Qi, Baowang Lu and Tao Shao*



9357

Recent advancements in the chemical recycling and biodegradation of post-consumer polystyrene waste

Hongbo Lei, Zigao Wang, Songjun Li and Maiyong Zhu*

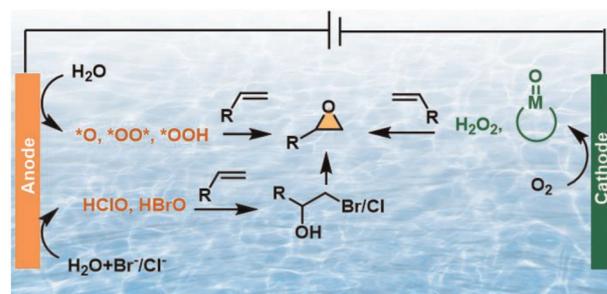


TUTORIAL REVIEW

9414

Electrolytic olefin epoxidation for sustainable synthesis of epoxy compounds

Hong-Ru Li,* Chao-Yang Jing, Shan-Shan Chen, Alexander O. Terent'ev and Liang-Nian He*

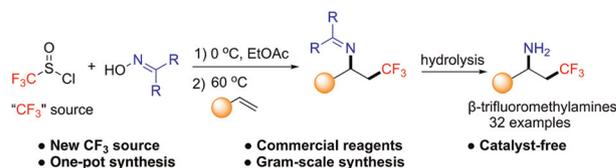


COMMUNICATIONS

9439

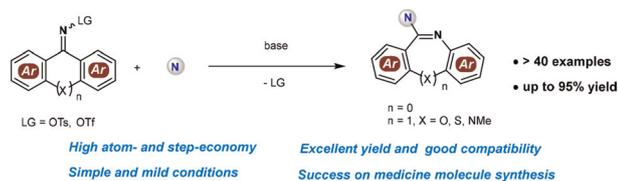
Trifluoromethanesulfinyl chloride: an effective trifluoromethyl radical source in the trifluoromethylimation of alkenes

Jiayu Liang, Shuping Wang, Xingda Zhao and Weilong Lin*



COMMUNICATIONS

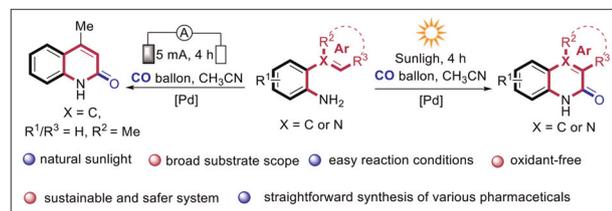
9445



Intramolecular nitrogen insertion of oxime ester to access aminated N-heterocycles

Han Wang, Jing Feng, Dan-Ni Liu, Mingming Yu,*
Ze-Feng Xu and Chuan-Ying Li*

9452

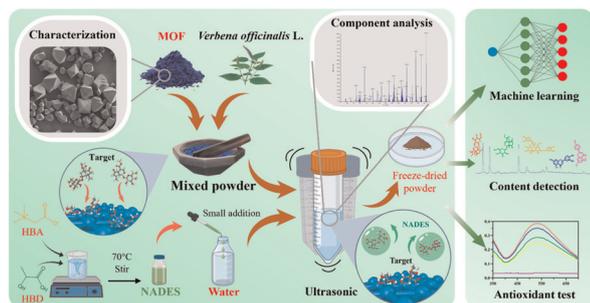


Renewable energy-driven synthesis of bioactive quinolinones through photocatalytic and electrochemical activation

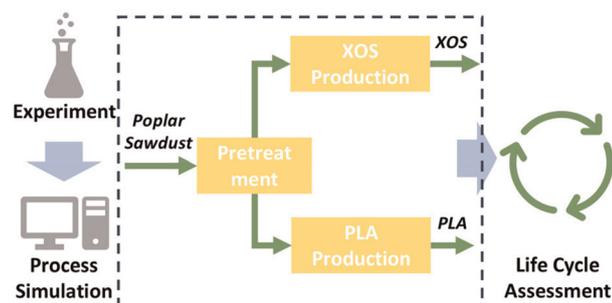
Qingge Zhao, Mengyu Peng, Huimin Li,
Longqiang Zhao, Xinyue Song, Peiyao Zhao,
Shoucai Wang,* Guangbin Jiang* and Fanghua Ji*

PAPERS

9459

Enhancing *Verbena officinalis* L. antioxidant yield through natural deep eutectic solvents and MOF synergistic applicationHaixiang Li, Kunze Du, Chong Liu, Yumin Yang,
Cailin Ye, Xiaoxia Li* and Yanxu Chang*

9480



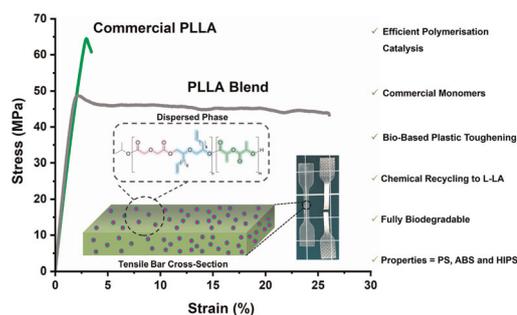
Environmental feasibility of sustainable co-production of xylooligosaccharides and bioplastic from poplar sawdust

Xiaoxue Zhao, Ruolin Li, Qiang Yong, Caoxing Huang*
and Kai Lan*

9495

Toughened commercial poly(L-lactide) (PLLA) using degradable and recyclable poly(ester-*alt*-ether)-*b*-PLLA

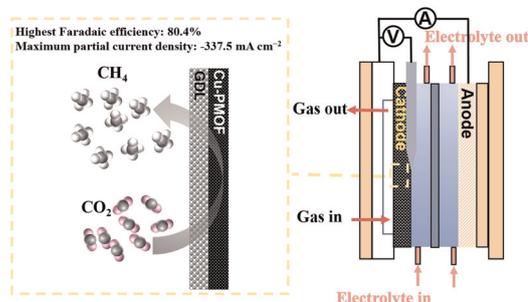
Alexander R. Craze, Ryan. W. F. Kerr, Thomas M. McGuire, Lukas Wille and Charlotte. K. Williams*



9512

Porphyrin-based metal-organic frameworks anchored with Cu species for highly efficient electrocatalytic CO₂ reduction to CH₄

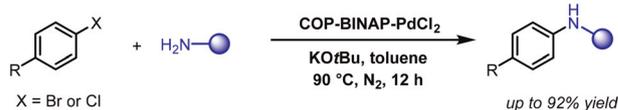
Wei qi Cao, Dexin Yang,* Bingyu Li, Yulan Mi, Kongsheng Qi, Yidan Mao, Yuhua Zhao, Hongping Li* and Zhen-Hong He*



9522

Hierarchical phosphorus-enriched organic polymer supports for immobilized palladium catalysts: enabling green and efficient Buchwald-Hartwig amination

Xin Liu, Xinxin Han, Jiaxi Cai, Qiaoya Wang, Le Liu, Xin-Hua Duan and Mingyou Hu*

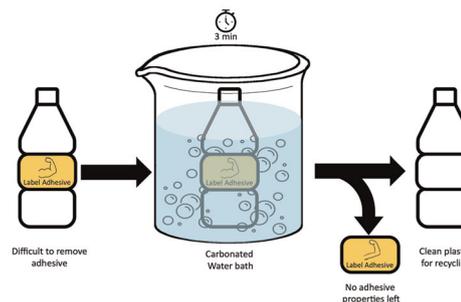


- High catalytic efficiency
- Excellent selectivity
- Good functionality tolerance
- Broad substrate scope
- Recyclable Pd catalyst

9531

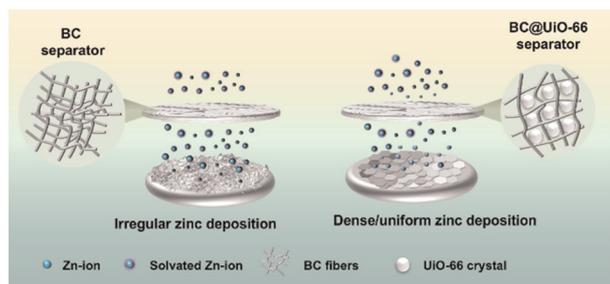
Using a bioderived CO₂-responsive polymer as an easily removed pressure sensitive adhesive

Daniel Barker, Shannon Whitty, Tobias Robert, Parisa Bayat, Marc A. Dubé, Michael F. Cunningham, Guojun Liu* and Philip G. Jessop*



PAPERS

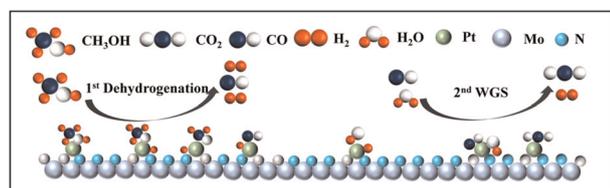
9541



Innovative bacterial cellulose and UiO-66 composites for superior zinc ion battery separator performance

Tian Zhao,* Pengcheng Xiao, Saiqun Nie, Jiangrong Yu, Shilin Peng, Jiayao Chen, Fuli Luo and Yi Chen*

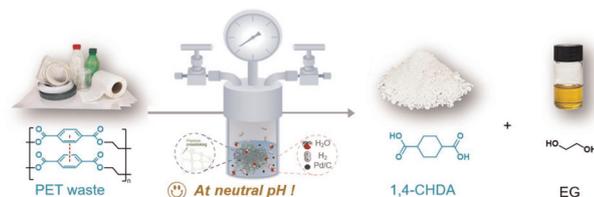
9559



An atomically dispersed Pt/ γ -Mo₂N(O_{0.3}) catalyst for hydrogen production via aqueous-phase reforming of methanol

Yeteng Gong, Hengyue Xu, Yongsheng Li, Yaxuan Jing,* Xiaohui Liu, Yanqin Wang* and Yong Guo*

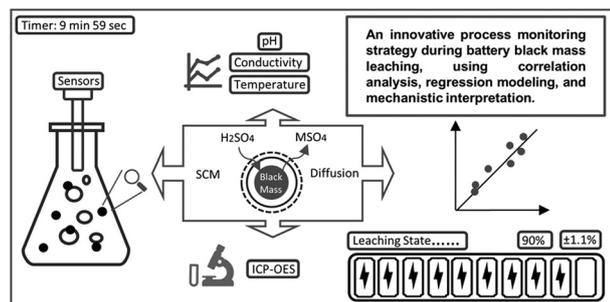
9569



Hydrogenation-induced selective degradation of PET wastes

Beibei Tan, Ming Lv, Xiaotian Qi* and Zhiliang Huang*

9578



Leaching state prediction for battery black mass using online sensor data

Wei Song,* Andrey Yasinskiy, Fabian Diaz, Tobias Kleinert and Bernd Friedrich



9597

Photoinduced 1,2-*cis* glycosidation with catalytic amounts of NIS: minimizing the requirements for donor activation and additive dependent anomeric stereocontrol

Jianwu Lv, Yongshun Qiu, Yuanyuan Li, Tianlu Li,*
Richard R. Schmidt* and Peng Peng*



- excellent 1,2-*cis* stereoselectivity
- mild, simple, practical
- non-specialized leaving group
- good to excellent yield
- metal-free, cheap catalyst,
- Without directing groups

