Industrial Chemistry & Materials

An international journal of significant innovative research and major technological breakthroughs in all aspects of industrial chemistry and materials rsc.li/icm

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 2755-2500 CODEN ICMNCZ 2(4) 483-652 (2024)



Cover See Yuhang Li, Chunzhong Li *et al.*, pp. 533–555. Image reproduced by permission of Yuhang Li, Chunzhong Li from *Ind. Chem. Mater.*, 2024, **2**, 533.

REVIEWS

489

Strategies to enable microsized alloy anodes for high-energy and long-life alkali-ion batteries

Amine Daali, Rachid Amine, Wilkistar Otieno, Gui-Liang Xu* and Khalil Amine*



514

Aqueous Zn–CO₂ batteries: a route towards sustainable energy storage

Yanxiu Liu, Junjie Chen, Weichen Li, Yu Zhang,* Xianwei Fu, Erling Li, Shangbin Jin, Li-Ming Yang, Zhihong Tian,* Markus Antonietti and Tianxi Liu*



MINI REVIEWS

556



Recent progress in nickel single-atom catalysts for the electroreduction of CO₂ to CO

Ziyan Yang, Rongzhen Chen, Ling Zhang, Yuhang Li* and Chunzhong Li*

Coordination bond cleavage of metal-organic frameworks and application to flame-retardant polymeric materials

Kunpeng Song, Ye-Tang Pan,* Jiyu He and Rongjie Yang

PAPERS

571



Preparation of inorganic molten salt composite phase change materials and study on their electrothermal conversion properties

Jiandong Zuo, Hongjie Luo, Ziye Ling,* Zhengguo Zhang,* Xiaoming Fang and Weiwei Zhang



Theoretical investigation of carbon dioxide adsorption on MgH₂ with a cobalt catalyst

Sara Rozas, Fabiana C. Gennari, Mert Atilhan, Alfredo Bol and Santiago Aparicio*

8

PAPERS

600

Cross-polymerization between bio-oil and polyaniline: synergistic effects on pore development in subsequent activation and adsorption of phenol

Baihong Li, Chao Li, Dianqiang Li, Lijun Zhang, Shu Zhang, Yi Wang, Song Hu, Jun Xiang, Mortaza Gholizadeh and Xun Hu*



613

Improvement of octane number in FCC gasoline through the extraction with urea/thiourea complex based on property analysis

Lin Gao,* Chunyu Geng,* Botao Teng, Hongwei Xiang, Xiaodong Wen,* Yong Yang and Yongwang Li



622

Development of a double-side ordered membrane electrode assembly based on titanium nitride nanoarrays

Lingfeng Xuan, Deqing Mei, Caiying Zhou, Wenze Mao and Yancheng Wang*

634

Elongated Fe-N-C containing trace atomic Co dopants for high power density PEMFCs

Jiayao Cui, Junyong Min, Hao Wang,* Jianglan Shui, Lishan Peng, Zhenye Kang, Jieyuan Liu, Qingjun Chen,* Shuo Bai and Yanrong Liu*





PAPERS



Photo-polymerization using quantum dots for stable epoxy coatings

Keroles B. Riad, M. Reza Kholghy and Paula M. Wood-Adams*