Contents

The latest advances on graphene-based materials and their applications for diagnosis, detection, decontamination, and protection against COVID-19 are presented. Further, the main challenges and the perspective for fundamental design and fabrication of technologies based on graphene-based nanomaterials for COVID-19 are discussed.

Graphene-based Materials for Fighting Coronavirus Disease 2019: Challenges and Opportunities

I. Maqbool*, F. Rehman, F. Soomro, Z. Bhatti, U. Ali, A. H. Jatoi, B. Lal, M. Iqbal, S. Phulpoto, A. Ali*, K. H. Thebo*

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The demand for cleaner fuels has been on the rise lately. This has led to the introduction of biofuels such as biodiesel and bioethanol. The potential for renewable energy sources is widely broadened because it can exponentially surpass the energy demand of the world. The major factor that defines cost of biodiesel production resulting from vegetable oil is the cost of feedstock.

Heterogeneous Catalysis of Second Generation Oil for Biodiesel Production: A Review

F. A. Aderibigbe, S. Shiru*, H. B. Saka, M. K. Amosa, S. I. Mustapha, M. I Alhassan, A. L. Adejumo, M. Abdulraheem, R. U. Owolabi

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The application of membranes is an effective method for natural gas purification since acid gases like CO₂ and H₂S need to be separated from natural gas in order to increase its heating value and reduce pipeline corrosion. A complete overview of a variety of gas separation membranes is given, discussing different glassy and rubbery polymeric membranes along with other membrane types for gas separation purposes.

A Review on Glassy and Rubbery Polymeric Membranes for Natural Gas Purification

M. Farnam*, H. bin Mukhtar, A. bin Mohd Shariff

ChemBioEng Rev. 2021, 8 (2), 90 ... 109

DOI: 10.1002/cben.202100002
The latest advances on MXene-based lamellar membranes and their applications in desalination, water purification, gas separation, and pervaporation are reviewed. Strengths and weaknesses of various fabrication methods are discussed and summarized. Finally, current challenges and future research direction are highlighted.

Recent Advances in MXene-based Separation Membranes

Z. Ahmed, F. Rehman, U. Ali, A. Ali*, M. Iqbal, K. H. Thebo*

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The rapid development of microfluidic technology in the past few decades introduced a unique opportunity to revisit many conventional techniques for scaling-down and optimization purposes. Microfluidic water desalination is a new promising scale-down approach to develop portable desalination devices that can be used by individuals with minimum power consumption and manufacturing costs.

Microfluidic Desalination: A New Era Towards Sustainable Water Resources

H. A Abdulbari*, E. Basheer

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The research and application of ultrasonic scaling removal technology and ultrasonic heat transfer enhancement technology is reviewed with particular focus on the impact of parameters on the performance. Ultrasound as an advanced treatment method has great advantages in the scale removal area. Future research on ultrasonic scaling removal and heat transfer enhancement is also suggested.

Advances of Ultrasonic Scaling Removal Technology and Heat Transfer Enhancement Technology

K. Zhao, J. Wu*, X. Li, Z. Li, Y. Chen

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