



Adsorption on Mesoporous Metal-Organic Frameworks in Solution for Clean Energy, Environment and Healthcare: An Introduction and Applications for Energy, Environment and Healthcare (Hardback)

By Alexander Samokhvalov

Taylor Francis Inc, United States, 2017. Hardback. Condition: New. Language: English . Brand New Book. Adsorption and desorption in solution play significant roles in separations, detoxification of waste streams, in purification, chromatography, heterogeneous catalysis, metabolism of medicinal drugs, and beyond. Metal-Organic Frameworks (MOFs) are well-ordered 3-dimensional hybrid organic-inorganic polymers which contain metal cations and the structure-building organic linker units. Mesoporous MOFs with pore sizes 2-50 nm are particularly suitable for adsorption and adsorption-based separations of large molecules of organic and bio-organic compounds. Thousands of organic compounds and, in particular, aromatic and heterocyclic compounds are widely used as feedstock for industrial chemical synthesis, as fine chemicals, major components of liquid fossil fuels, dyestuffs, industrial solvents, agricultural chemicals, medicinal drugs, pharmaceuticals and personal care products (PPCPs), and active pharmaceutical ingredients (APIs). There is a strong interest towards synthesis, characterization and studies of both known and newly synthesized mesoporous MOFs for adsorption in solution to achieve the high adsorption capacity, selectivity, and the possibility of multiple regeneration of spent sorbent. This book covers experimental fundamental research on using mesoporous MOFs in emerging applications of major industrial, environmental and academic importance, especially purification of water and liquid fossil fuels and in advanced biomedical technologies.



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