

Cellulose Containing Metal Organic Frameworks in Environmental Applications

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Abstract : As an essential issue for life, water while it's important for all living organisms. However, the world is dangerously facing the serious problem for the deficiency of the sources of drinking water. Within the aquatic systems, there are various gases, microbes, and other toxic ingredients (chemical compounds and heavy metals) occurred owing to the draining of agricultural and industrial wastewater, resulting in water pollution. On the other hand, fuel (gaseous, liquid, or in solid phase) is one of the extensively consumable energy sources, and owing to its origin from fossil, it contains some sulfur-, nitrogen- and oxygen-based compounds that cause serious problems (toxicity, catalyst poisoning, corrosion, and gum formation and carcinogenic effects), to be ascribed as undesirable pollutants. MOFs as porous coordinating polymers are superiorly exploited in the adsorption and separation of contaminants for wastewater treatment and fuel purification. The inclusion of highly adsorbent materials like MOFs to be immobilized within cellulosic materials could be investigated as a new challenge for the separation of contaminants with high efficiency and opportunity for recyclability. Therefore, the current approach ascribes the exploitation of different MOFs immobilized within cellulose (powder, films, and fabrics) for applications in environmental. Herein, using cellulose containing MOFs in dye removal (degradation and adsorption), pharmaceutical intermediates removal, and fuel purification were summarized.

Keywords : cellulose, MOFs, dye removal, pharmaceutical intermediates, fuel purification

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