

The effects of chemical modification on adsorbent performance on water and wastewater treatment - A review

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ABSTRACT

Current strategies for removing inorganic pollutants from wastewater are expensive, energy-intensive, and necessitate the disposal of producing toxic waste. Hence, there is a need for an effective, selective, and cost-effective adsorbent material. Adsorption has become one of the oldest and most recognized approaches for treating water and wastewater. As an indirect observation, adsorption performance is highly influenced by the surface phenomenon (physical and chemical) of the unmodified and modified precursor. The surface chemistry with the modification method and the material's composition substantially affects the surface's functions. The chemical approach of surface activation is a process that modifies the surface properties and structure of the material to increase the adsorption efficiency. The adsorbent modification could provide a versatile, low-cost, and sustainable solution to pollution of freshwater's inorganic point source. This paper focuses on presenting a comprehensive assessment of the selection and influences of chemical modification on various well-known adsorptive feedstocks.

KEYWORDS

Adsorbate; Adsorbent; Adsorption; Chemical modification; Surface chemistry

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