

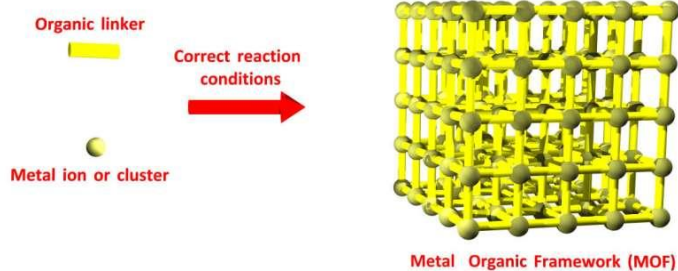
Advancement in Metal Organic Frameworks for Gas Storage and Separation Applications

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Abstract: *Metal-Organic Frameworks (MOFs) have emerged as a promising class of materials for gas storage and separation owing to their highly tunable structures and exceptional porosity. This review encapsulates recent advancements and breakthroughs in MOF design, synthesis, and application within the realm of gas storage and separation. Advancements aim to enhance gas adsorption capacities and selectivities while ensuring stability under diverse environmental conditions. The versatility of MOFs has enabled targeted gas storage, including hydrogen, methane, and carbon dioxide, as well as selective separation of gas mixtures such as CO₂/CH₄. The systematic exploration of MOFs showcases their potential as viable candidates for addressing pressing challenges in clean energy, environmental remediation, and industrial gas purification*



Keywords: Metal-Organic Frameworks (MOFs), Gas Storage, Porous Materials, Adsorption Capacity, Synthesis Methods, Environmental Applications, Clean Energy