Catalytic Potential of Metal-Organic Frameworks for Sustainable Chemistry

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Abstract:

This project investigates the catalytic properties of metal-organic frameworks (MOFs) for sustainable chemistry. MOFs are porous materials composed of metal ions coordinated to organic ligands, offering unique structural and chemical characteristics that make them attractive catalysts.

The research focuses on assessing the viability of MOFs as catalysts for environmentally friendly chemical transformations. Synthesis, characterization, and evaluation of MOFs in oxidation, hydrogenation, and C-C bond formation reactions are conducted. Advanced characterization techniques and mechanistic investigations provide insights into the catalytic pathways and reaction mechanisms.

By exploring the catalytic potential of MOFs, this research contributes to the development of sustainable chemistry practices. The findings inform the design and synthesis of novel MOF-based catalysts, enabling more efficient and selective chemical reactions in various industrial processes.