Novel Metal-Organic Frameworks for Gas Storage Applications

Riley Moore
PhD
Taras Shevchenko National University of Kyiv
Volodymyrska St, 60, Kyiv, Ukraine, 01033

Sam Turner
PhD
University of Barcelona
Gran Via de les Corts Catalanes, 585, 08007 Barcelona, Spain

Taylor Brown
PhD
University of Cape Town
Rondebosch, Cape Town, 7700, South Africa

Abstract. This paper examines the development of novel metal-organic frameworks (MOFs) for gas storage applications. We have synthesized a series of MOFs with high surface areas and unique pore structures, suitable for storing gases like hydrogen and carbon dioxide. The study reveals that these MOFs exhibit superior gas adsorption capacities compared to conventional materials, offering potential solutions for energy storage and carbon capture technologies.

Keywords: Metal-Organic Frameworks, Gas Storage, Adsorption, Hydrogen, Carbon Capture

Introduction

Metal-organic frameworks (MOFs) have emerged as promising materials for gas storage due to their high surface areas and tunable pore sizes. These characteristics allow MOFs to efficiently adsorb and store various gases, including hydrogen and carbon dioxide, which are critical for energy storage and environmental management. In this study, we synthesize and characterize a series of novel MOFs designed for optimal gas storage performance. Our findings demonstrate their superior adsorption capacities, highlighting their potential to enhance current technologies in energy and carbon management.

References

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