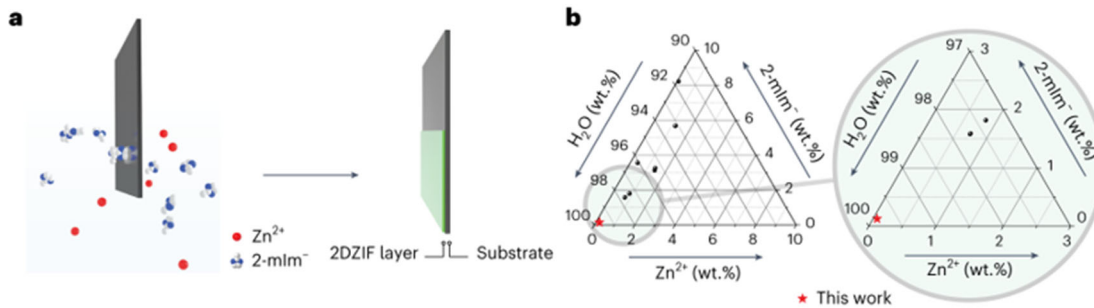


# Ultrathin Metal-Organic Frameworks for High-Performance Gas Separation



a. Schematic of ZIF film synthesis. b, Composition diagram comparing the precursor solution composition used in this study with those reported in the literature

Ref. Nr

6.2343

Keywords

MOF, gas separation, Zeolitic Imidazolate (ZIF)

Intellectual Property

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## Description

Zeolitic imidazolate frameworks (ZIFs) are a class of metal-organic frameworks (MOFs) that hold promise for applications in molecular separations. However, achieving continuous, large-area 2D MOF films with nanometer-scale thickness has remained elusive.

This technology is a new process for the manufacture of 2D ZIF films with exquisite nanometre-scale control over the film thickness by suppressing the out-of-plane growth. The process relies on the use of ultradilute MOF precursors.

## Advantages

- Formation of continuous ultrathin MOF films
- Precise nanometer-scale thickness tuning: film thickness can be controlled with a resolution of a single layer by controlling the deposition time and number of coatings.
- Improved in-plane growth control

## Applications

- Gas Separation
- Removal of pollutants
- Carbon capture