



Supplementary Materials: Impact on CO₂/N₂ and CO₂/CH₄ Separation Performance Using Cu-BTC with Supported Ionic Liquids-Based Mixed Matrix Membranes

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[EMIM][BF₄] series

Infrared spectroscopy

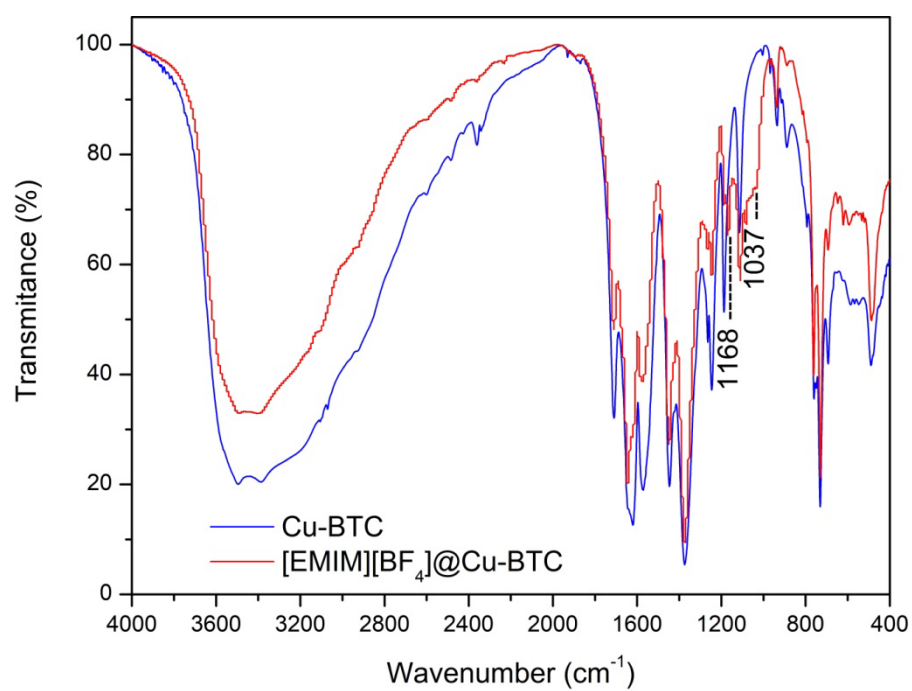


Figure S1. FT-IR spectra of the Cu-BTC precursor (blue line) and the composite [EMIM][BF₄]@Cu-BTC (red line) collected in the 400 – 4000 cm⁻¹ range.

Thermogravimetry

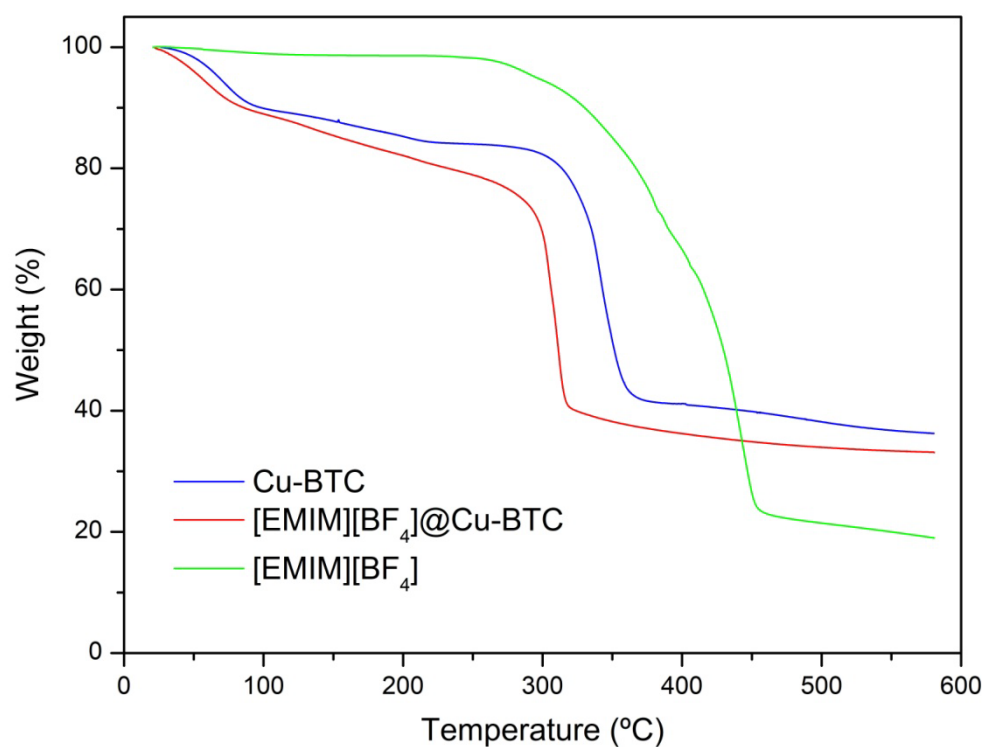


Figure S2. Thermogravimetric analysis of [EMIM][BF₄] (green line), Cu-BTC (blue line) and [EMIM][BF₄]@Cu-BTC (red line) in the range 20–600 °C.

Powder X-ray diffraction

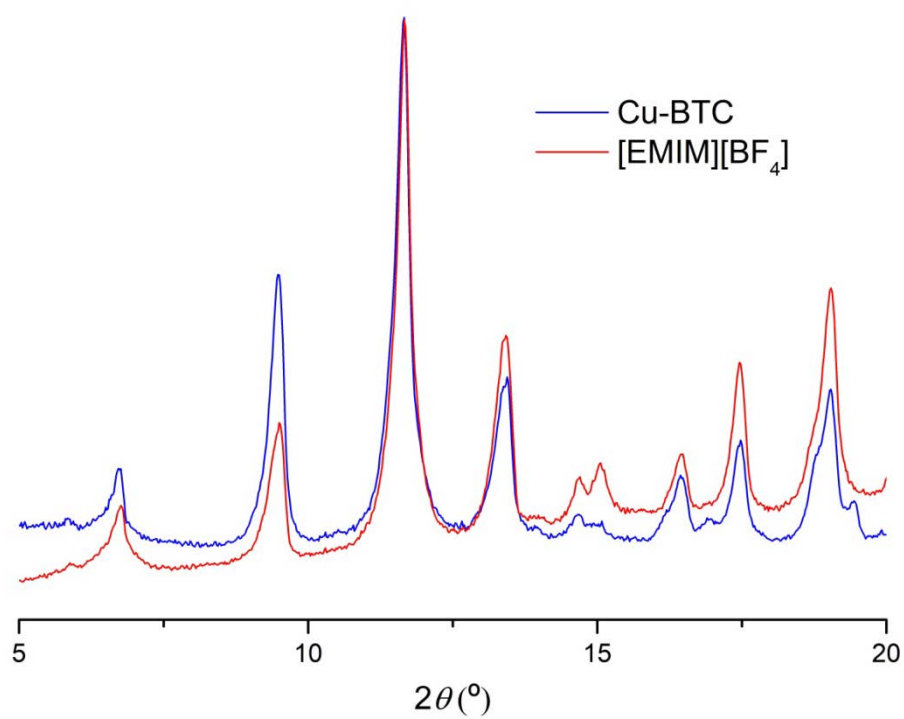


Figure S3. Powder XRD pattern for the precursor Cu-BTC (blue line) and the [EMIM][BF₄]@Cu-BTC composite (red line).

Scanning Electron Microscopy (SEM)

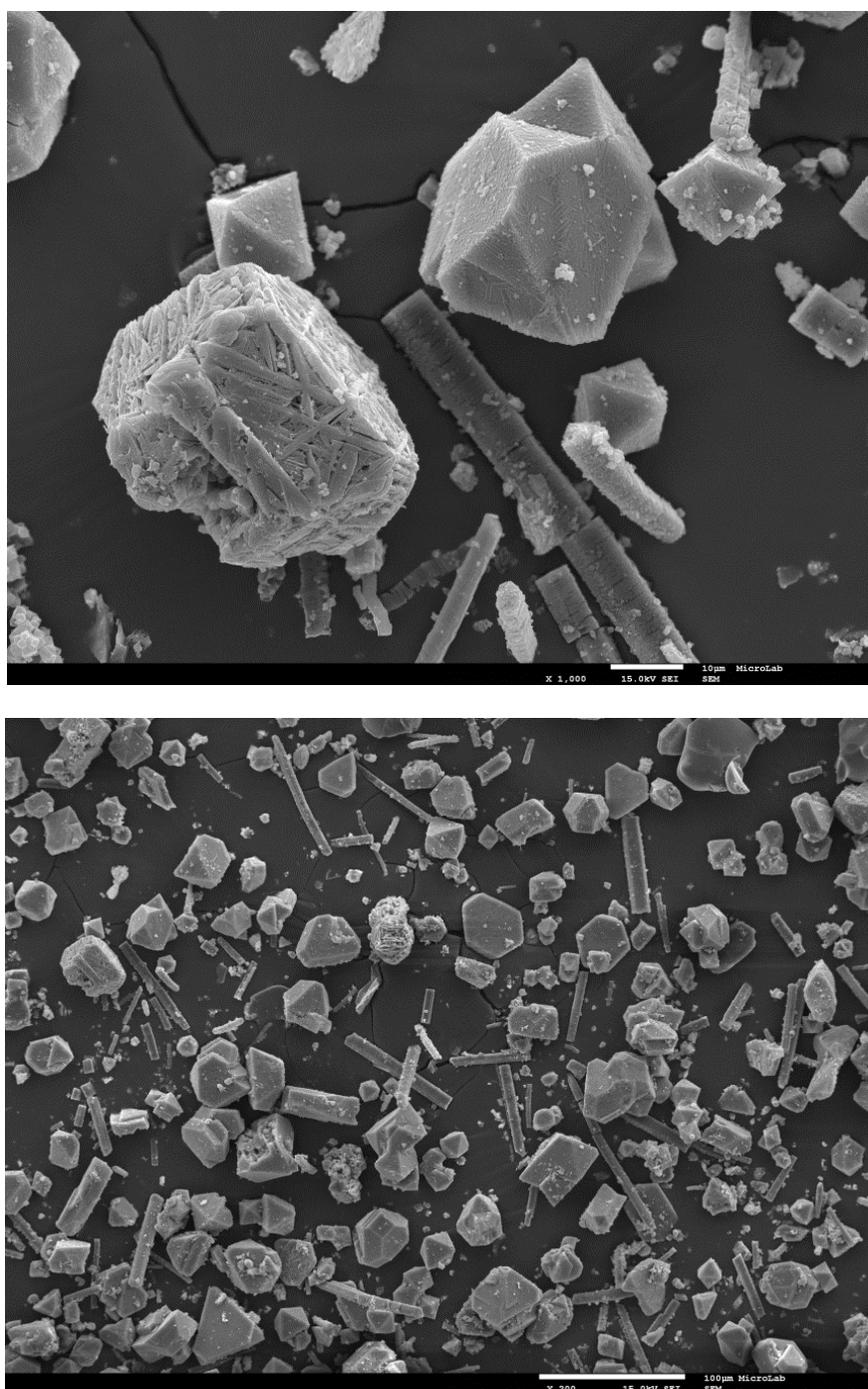


Figure S4. SEM images of the [EMIM][BF₄]@Cu-BTC composite.



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