

Tunable frameworks for CO₂ control: designing materials for CCUS

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The urgent need to mitigate atmospheric CO₂ levels has driven innovation in carbon capture, utilization, and storage (CCUS) technologies. This contribute explores the development engineered materials with adaptable structural and chemical properties for enhanced CO₂ control. By tailoring porosity, surface functionality, and adsorption behavior, these frameworks offer promising pathways for selective CO₂ capture, efficient conversion, and long-term storage. Design strategies that integrate molecular-level control with scalable performance will be presented, paving the way for next-generation CCUS solutions that are both effective and sustainable.