

Composition and Method for Rapid and Equimolar CO₂ Capture

UT-B ID 201002434



Technology Summary

The emission of carbon dioxide (CO₂) from burning of fossil fuels has received worldwide attention because of its implication in climate change, which threatens economies and environments. Accordingly, new materials that can efficiently, reversibly, and economically capture CO₂ must be developed. Currently, the goal is to design and prepare sorbent materials with high capacities and rapid absorption rate for CO₂ capture. A key problem associated with current capture systems is their high viscosity, which slows absorption kinetics and increases operating costs. Herein, the invention is directed to a novel strategy for CO₂ capture by a diverse group of functionalized ionic liquids (ILs). We show that high CO₂ capacity (about 1 mol per mole of IL) and rapid absorption rates can be achieved.

Advantages

- Ionic liquids enable capture of CO₂
- Ionic liquids allow rapid absorption rate and high absorption capacity
- Process is equimolar, rapid, and reversible

Potential Applications

- Capture of CO₂

Patent

Application in preparation

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