DESCRIPTION

This comprehensive volume brings together an extensive collection of systematic computer-aided tools and methods developed in recent years for CO2 capture applications, and presents a structured and organized account of works from internationally acknowledged scientists and engineers, through:

- Modeling of materials and processes based on chemical and physical principles
- Design of materials and processes based on systematic optimization methods
- Utilization of advanced control and integration methods in process and plant-wide operations

The tools and methods described are illustrated through case studies on materials such as solvents, adsorbents, and membranes, and on processes such as absorption / desorption, pressure and vacuum swing adsorption, membranes, oxycombustion, solid looping, etc.

*Process Systems and Materials for CO2 Capture: Modelling, Design, Control and Integration* should become the essential introductory resource for researchers and industrial practitioners in the field of CO2 capture technology who wish to explore developments in computer-aided tools and methods. In addition, it aims to introduce CO2 capture technologies to process systems engineers working in the development of general computational tools and methods by highlighting opportunities for new developments to address the needs and challenges in CO2 capture technologies.
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