



clean technologies



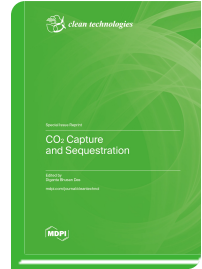
Special Issue Reprint

CO₂ Capture and Sequestration

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Edited by
Diganta B. Das

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CO₂ capture and sequestration (CCS) technologies aim to capture carbon dioxide (CO₂) from CO₂ sources, separate the CO₂, and store it in suitable media. CO₂ can be captured using various technologies, including absorption, adsorption, cryogenic processes, and membrane gas separation. Therefore, accurate selection, design, modelling, and optimisation of the processes for CO₂ capture and the tuning of the material properties are essential. There are different methods used for CO₂ sequestration, e.g., (i) geological sequestration, which injects different phases of CO₂ into the subsurface; (ii) oceanic storage, which dissolves CO₂ into an ocean at different depths; (iii) the solid-phase reaction of CO₂ with metal oxides to produce stable carbonates with no risk of CO₂ release to the atmosphere; etc. The flow, transport, and reaction of CO₂ during CCS and other related matters are also essential. To address these points, a Special Issue of *Clean Technol.* and a reprint with all published papers have been organized which highlight the recent trends and innovative developments in CCS. In particular, these papers highlight the following issues: Socio-political issues related to CCS development and deployment; Fundamental technical issues concerning the development and deployment of CCS; The synthesis of value-added chemicals using captured CO₂ in CCS; Applications of mathematical modelling for the development of CCS. The development of techno-economic costing models for CCS. Overall, this reprint covers a diverse range of topics, including some of the most pressing concerns for the future growth and development of CCS.



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