



CO₂ sorption on gasified coals

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UCG (Underground Coal Gasification) is currently being considered as an economically and environmentally sustainable option for development and utilization of coal deposits not mineable by conventional methods. This emerging technology in combination with carbon capture and sorptive CO₂ storage on the residual coke as well as free-gas CO₂ storage in the cavities generated in the coal seams after gasification could provide a relevant contribution to the development of Clean Coal Technologies. Three hard coals of different rank from German mining districts were gasified in a laboratory-scale reactor (200 g of coal at 800 °C subjected to 10 L/min air for 200 min). High-pressure CO₂ excess sorption isotherms determined before and after gasification revealed an increase of sorption capacity by up to 42% (Kempka et al. 2009). Thus, physical sorption represents a feasible option for CO₂ storage in underground gasification cavities.

References

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