

## Demonstration of Long-Term Operation with a Potassium-Based Dry Sorbent for CO<sub>2</sub> Capture in Two Interconnected Fluidized Bed Reactor

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The CO<sub>2</sub> removal in dry sorbent CO<sub>2</sub> capture system consists of two reactors for carbonation and regeneration. We used spray-dried sorbents contained alkali carbonate, which was supplied by KEPRI in order to see the sorbent performance in continuous operation mode with solid circulation. The process with 2Nm<sup>3</sup>/h of gas treatment capacity has been continuously operated during 50 hours, circulating potassium-based solid sorbents between a fast fluidized-bed carbonator and a bubbling fluidized-bed regenerator. 13% inlet CO<sub>2</sub> concentration in a flue gas stream has been maintained during continuous operation. The effects of CO<sub>2</sub> removal on the solid circulation rate and the regeneration temperature were examined. Increasing the solid circulation rate and the regeneration temperature gave rise to the increase of the overall CO<sub>2</sub> removal.