



# CO<sub>2</sub> capture with potassium carbonate solutions: A state-of-the-art review



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## ABSTRACT

The potassium carbonate (PC) solution is an important chemical solvent to reduce CO<sub>2</sub> emissions due to its advantages of low cost, little toxicity, ease of regeneration, slow corrosiveness, low degradation, and its high stability as well as CO<sub>2</sub> absorption capacity. As a result, the PC process has been applied in more than 700 plants worldwide for CO<sub>2</sub> and hydrogen sulphide removal from streams like ammonia synthesis gas, crude hydrogen, natural gas, and town gas. This paper provides a state-of-the-art review on the research works on CO<sub>2</sub> capture using the PC solution. The studies related to the PC solution comprise three main areas: process, thermodynamics, and kinetics. Important experimental studies as well as modeling and simulation studies are reviewed. Future research directions on CO<sub>2</sub> absorption by aqueous PC solution are highlighted and discussed.

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