An overview on control strategies for CO₂ capture using absorption/stripping system

CO₂ removal via absorption/stripping system using chemical solvents is a widely acknowledged technology for CO₂ capture, either from natural gas or post-combustion processes. It offers higher capture efficiency. However, one of its main drawbacks is the high energy consumption in the regeneration step. Besides, for solvent-based absorption/stripping plant, the units feature nonlinearities as well as high process interactions. Hence, control strategies are crucial in the operational optimization of process set-point changes and disturbance rejections as well as reduction in the operational costs of such systems. Process control systems are key in processing plants as they direct production processes, minimise variations and regulate product consistency. In this paper, an overview on the related efforts that have been carried out in terms of basic and advanced process control strategies are reviewed to provide further understanding on the key features that are required to optimize the operation of the absorption/stripping system.

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