Dynamic simulation of a post-combustion CO_2 capture plant using mono-ethanolamine solution

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Carbon dioxide (CO_2) emissions reduction from combustion fossil fuel power plants is a key factor in the stabilization of global climate change. Post-combustion CO_2 capture from fossil fuel power plants using monoethanolamine (MEA) is one of the most promising technology for the removal of CO_2 gas. However, despite the advances in this field, only a few studies have presented a dynamic process model and controllability analysis of the post-combustion CO_2 capture process for fossil fuel power plants.

In this study, steady-state simulation of post-combustion CO_2 capture using MEA process was performed and dynamic simulation covering several selected disturbances that may occur during the operation of an amine based CO_2 capture plant is performed. Dynamic simulation for various disturbances was performed.