

Simulation of CO₂ capture using AMP/MEA and MDEA/MEA solutions

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Removal of CO₂ and H₂S from natural gas, refinery and synthesis gas streams is a significant process in gas processing. The use of mixed amine systems in gas treating processes is of increasing interest today. The mixed amine systems can bring about considerable improvement in gas absorption and great savings in regeneration energy requirements. In this context, we carried out an investigation of CO₂ absorption into aqueous blends of methyldiethanolamine (MDEA) and monoethanolamine (MEA), as well as 2-amino-2-methyl-1-propanol (AMP) and monoethanolamine (MEA) using HYSYS simulation. It has been found that the addition of a small amount of MEA to an aqueous solution of MDEA or AMP significantly enhances the CO₂ absorption rate for both solvents, while the enhancement has been found to be relatively higher into (AMP + MEA) than into (MDEA + MEA).

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