

Effects Of Solid Catalysts Aided Regeneration In CO₂ Loaded Primary Alkanolamine
Solvent For Effective Stripper

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Chemisorption by using alkanolamine based solvents is the most selective and promising technology for capturing CO₂ emitted from flue gas of fossil fuel combustion. However, some serious drawbacks such as large heat requirement in stripper and solvent degradation have hindered the large-scale deployment of this technique. Herein, we elucidate an efficient regeneration process by using solid acid catalysts which shows potential to regenerate the most commonly used primary amine, monoethanolamine (hereafter referred as MEA) at mild temperature conditions. This catalytic regeneration process is advantageous in terms of regenerating MEA solvent at low temperatures such as 80–85 °C which would greatly reduce the energy input in stripper. At these temperature conditions, thermal degradation of the solvent could be avoided completely. Moreover, a reasonable improvement in the solvent cyclic capacity can be achieved which indicates the enhanced solvent life time and hence a reduction in the operational cost is possible.