

Effects of Residence Time on Selective Absorption of Hydrogen Sulphide

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Abstract : Selective absorption of Hydrogen Sulphide (H₂S) using methyldiethanol amine (MDEA) has become a point of interest as means of minimizing capital and operating costs of gas sweetening plants. This paper discusses the prominence of optimum design of column internals to best achieve H₂S selectivity using MDEA. To this end, a kinetics-based process simulation model has been developed for a commercial gas sweetening unit. Trends of sweet gas H₂S & CO₂ contents as function of fraction active area (and hence residence time) have been explained through analysis of interdependent heat and mass transfer phenomena. Guidelines for column internals design in order to achieve desired degree of H₂S selectivity are provided. Also the effectiveness of various operating conditions in achieving H₂S selectivity for an industrial absorber with fixed internals is investigated.

Keywords : gas sweetening, H₂S selectivity, methyldiethanol amine, process simulation, residence time

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