

H₂S Removal with MDEA Process

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Internationally, strict regulation of air-pollutant emission is figured in an effort to dwindling global warming and environmental problems by UNFCCC & government. However, 145 % increase of coal-powered generation from 2000 to 2010 is expected due to Korean governmental policy to maintain the 30% portion of coal-fired power generation. At this point of time, Integrated Gasification Combined Cycle (IGCC) is spotlighted as one of the best alternative plan to increase 3-10 % generation efficiency and remove pollutants (>90%) in spite of an up-to-date high oil prices.

In flue gases, most sulfur (> 98 %) were emitted as H₂S & COS from gasification reaction at high temperature and H₂S should be removed below 20 ppm to prevent the facility corrosion & pollution. Usually, MDEA is used for this gas treatment as an absorbent because MEDA can absorb H₂S selectively under proper operating conditions involving short contact times and can be used in concentrations up to 60% in aqueous solutions without appreciable evaporation losses because of low vapor pressure.

In this study, H₂S capacity of absorption was measured using MDEA with several different conditions and, finally, the best condition for removing H₂S in IGCC process was presented.