عنوان مقاله:

Experimental Study of Chemical Absorption of CO۲ in a Bench-Scale Spray Dryer Absorber

محل انتشار:

مجله پردازش گاز, دوره 6, شماره 1 (سال: 1397)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

The removal of CO۲ through chemical absorption in a bench-scale spray dryer absorber was investigated experimentally using the lime slurry as absorbent. The effect of important operating parameters on CO۲ removal efficiency has been investigated; in selected ranges of operating parameters, increasing gas inlet temperature and absorbent concentration lead to permanent efficiency decline, increasing liquid to gas flow rate ratio and inlet gas humidity and lowering CO۲ concentration have favored the removal efficiency. Adding Na(OH) solution to the absorbent increases its ability to absorb CO۲ whiles decreases its tendency to produce final dried powder. It was found that adding ۱۰۰ mL of Na(OH) solution with ۱ mol/L concentration per each ۱۰۰۰ mL of lime slurry gives a removal efficiency of ۷۰.۵%. Other operating parameters were according to the following: Tg,in = ۲۰۰ ○C, CA,in = ۵ %(vol.), .CB,in = ۰.۷ mol/L, (L/G)in = ۰.۰۲۵ mL/L, Hin=۰.۰۲۴ kg/kg and N=۱۲۶۰۰ rpm

کلمات کلیدی:

CO۲ Removal, Chemical Absorption, Spray Dryer Absorber, Lime Slurry