Absorption of \( \text{SO}_2 \) in air mixture was performed in a 35 cm. diameter packed tower. The tower was filled with 2.5 cm. ceramic intalox for 180 cm. high. Water and limestone slurry were used as absorbents. The experimental result showed that removal efficiency increased with \( L/G \) and \( \text{Ca}/\text{S} \) but decreased with limestone particle size. Based on the operating condition, \( K_{a}^o \) was in the range of 45–80 kmole/h–m\(^3\).atm and varied directly with \( L,G \). When water was used \( K_{a}^o \) was in the range of 15–60 kmole/h–m\(^3\).atm. In addition, cost effectiveness analysis showed that using of limestone slurry was more economical than that of water.