

反应与分离

Absorption of Low Concentration Sulfur Dioxide Using Liquid-containing Microporous Membrane

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**摘要** The absorption of low concentration SO<sub>2</sub> in flue gas by using the module of liquid-containing microporous membrane which is made up of hollow fiber and citric acid-sodium citrate buffer solution was investigated. The absorption efficiency of hydrophilic and hydrophobic membranes by using the concept of dynamic contact angle was mainly studied. The influences on absorption efficiency from absorption time, flowrate of gas phase, SO<sub>2</sub> concentration of gas phase, air pressure, citrate concentration, pH value of solution as well as the generation of sulfate radical in absorption solution were examined. The results indicate that the hydrophobic hollow fiber membrane is better than hydrophilic membrane, the absorption efficiency decreases with increasing absorption time, gas phase flowrate, gas phase SO<sub>2</sub> concentration and air pressure, the absorption rate and capacity of SO<sub>2</sub> can be improved by increasing the citrate concentration, the absorption efficiency can be improved by increasing the pH value of citrate solution, the concentration of SO<sub>4</sub><sup>2-</sup> in absorption solution increases linearly with the absorption time at a rate around 0.192 g/(L×h).

**关键词** [hollow fiber, liquid-containing membrane, citric acid, low concentration SO<sub>2</sub> absorption, dynamical contact angle](#)

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