



Effects of initial chlorobenzene concentration, air flowrate and temperature on mass transfer of chlorobenzene by air stripping

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ABSTRACT

Volatile organic compounds (VOCs) are widely used in various industrial processes and caused water pollutions. VOCs removal from raw water is essential for water works to guarantee drinking water security. Air stripping column experiment was conducted to assess the effects of chlorobenzene (CB) initial concentration, air flowrate and temperature on the mass transfer of CB during air stripping. Air–water mass transfer of CB was quantified using the air–water mass transfer coefficient which was obtained from the simulation of a lumped parameter model. Experimental results demonstrated that air–water overall mass transfer coefficients (K_L) obtained from this study ranged from 10^{-1} and 10^0 min^{-1} . From a correlation analysis, K_L was found directly proportional to the initial concentration of CB, air flowrate and temperature. The correlation result of K_L with air flowrate and temperature demonstrates that the air–water overall mass transfer coefficients was strongly affected by the temperature of the bulk liquid.

Keywords: Volatilization; VOCs; Air stripping; Mass transfer; Effect

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