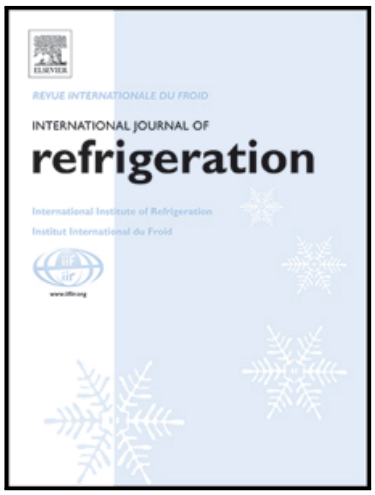

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Methanol adsorption behaviors of compression-molded activated carbon fiber with PTFE

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Highlights

- High-density activated carbon fibers were prepared by the addition of PTFE.
- The methanol adsorption equilibria were expressed by the Dubinin-Astakhov equation.
- The denser adsorbent adsorbed and desorbed methanol more rapidly.
- The numerical model predicted the transient adsorption-desorption behaviors.

Abstract

In order to improve the cold production performance of adsorption chillers using an activated carbon-methanol pair, we studied a high-density molded adsorbent consisting of activated carbon fiber and polytetrafluoroethylene (PTFE). The high-density activated carbon fibers (HDACF) with an apparent density of 135-357 kg m^{-3} were successfully prepared by the addition of a low dose of PTFE through kneading and mechanical compression processes.