

RESEARCH PAPERS

超临界条件下苯酚在活性炭和聚合物吸附剂上吸附等温线的测定

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摘要 A method named as "volume-expanding and pressure-reducing adsorption" is proposed. It can be used to measure the isotherms under supercritical condition. The adsorption isotherms of phenol on activated carbons and polymeric adsorbents are estimated and compared respectively for the systems of "phenol-activated carbon-supercritical fluid CO₂" and "phenol-polymeric adsorbent-supercritical fluid CO₂". The results show that the amount of phenol adsorbed on the activated carbons and the polymeric adsorbents under the supercritical condition is much less than that under the general condition, which can be utilized to develop a technology regenerating the activated carbon with supercritical fluid. Moreover, the effects of ethyl alcohol, used as the third component, on the isotherms of phenol on the activated carbons and polymeric adsorbents under the supercritical condition are also investigated.

关键词 [volume-expanding and pressure-reducing adsorption](#) [adsorption isotherm](#) [activated carbon](#) [polymeric adsorbent](#) [supercritical fluid](#)

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Estimation of the Isotherms of Phenol on Activated Carbons and Polymeric Adsorbents under Supercritical Condition

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Abstract A method named as "volume-expanding and pressure-reducing adsorption" is proposed. It can be used to measure the isotherms under supercritical condition. The adsorption isotherms of phenol on activated carbons and polymeric adsorbents are estimated and compared respectively for the systems of "phenol-activated carbon-supercritical fluid CO₂" and "phenol-polymeric adsorbent-supercritical fluid CO₂". The results show that the amount of phenol adsorbed on the activated carbons and the polymeric adsorbents under the supercritical condition is much less than that under the general condition, which can be utilized to develop a technology regenerating the activated carbon with supercritical fluid. Moreover, the effects of ethyl alcohol, used as the third component, on the isotherms of phenol on the activated carbons and polymeric adsorbents under the supercritical condition are also investigated.

Key words [volume-expanding and pressure-reducing adsorption](#); [adsorption isotherm](#); [activated carbon](#); [polymeric adsorbent](#); [supercritical fluid](#)

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