Effects of Surface Characyeristics of Activated Carbons on VOC Adsorption

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摘要.

Surface characteristics of activated carbons can play critical roles on adsorption performance of volatile organic compounds (VOCs). Attempts were made to correlate the specific physicochemical characteristics of various activated carbons with the VOC adsorption. Eight commercial activated carbons and 10 VOC species were studied. Detailed physicochemical properties of activated carbon were established in this study. Results indicate that both factor analysis and correspondence analysis can provide satisfactory information on the relationship among the surface characteristics of activated carbon, the VOC properties, and the VOC adsorption on activated carbon. Results also suggest that boiling point, critical temperature, cross-sectional area, and dipole moment of the VOCs are the most important properties governing activated carbon adsorption. Additionally, pore volume and specific surface area of activated carbon are still considered as the most important factors regarding the VOC adsorption