

## Adsorption Characteristics of Three Component VOCs Including High-Polarity Chemicals on Activated Carbonaceous Adsorbents

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The adsorption characteristics of three component solvent vapors such as toluene-xylene-MEK and toluene-MEK-IPA on the activated carbonaceous adsorbents were investigated in a stainless steel fixed bed of 10.2cm I.D. and 50cm in height in order to identify those carbons for eliminating and recovering solvent vapors from industrial emission sources. The used activated carbonaceous adsorbents were pelletized commercial activated carbon and activated carbon fiber. Equilibrium data and adsorption capacity measured at atmospheric pressures were reasonably fitted with well-known isotherms such as Langmuir, Freundlich, and Sips equations well. It has been found that non-polar and larger molecules have been adsorbed better than polar and smaller molecules. Especially, alcohols and ketones were poorly adsorbed caused by competitive adsorbability in ternary mixture system. However, it could be overcome by profitable employment of organization of cooperative system which was composed of different porosity activated carbonaceous adsorbents appropriately.