

Advanced Characterization Technique for the Removal of Organics Using PAC Adsorption for Secondary Wastewater Reuse

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Advance characterization method was proposed by applying molecular weight distribution information of dissolved organics in wastewater into conventional characterization technique. TOC analyzer, UV spectrophotometer and high performance size-exclusion chromatography (HPLC) were used to analyze the organic content and the molecular weight distribution in order to examine the adsorption isotherm data for the secondary wastewater on two different powdered activated carbons(PACs). The adsorbability heterogeneity of organics were accounted for using log-normal distribution of the Freundlich parameter (κ). The isotherms of all organic compounds measured by both TOC and UV254 were successfully described by an overall isotherm, derived based on the Freundlich-IAST (ideal adsorbed solution theory) model. This result will be widely applied for the simulation of adsorption kinetics and column dynamics of wastewater.