

Electrospun activated carbon incorporated Titania for adsorptive degradation of volatile organic compounds

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Most of the volatile organic compounds (VOCs) are the “hazardous air pollutant” which emitted from the major household as well as the industrial sources. Electrospun nanofibers are very effective in photocatalysis, particularly TiO₂ fiber shows greater attention in catalytic degradation of VOCs. In this study, AC and TiO₂ were combined to form a composite using coating and impregnation method. Then the nanocomposite was mixed with cellulose acetate (CA) for electrospinning. Electrospinning technique is very promising in drawing nanofibers using the electrostatic force of attraction and Nanofibers are very much effective in VOC removal as well as gas storage application. Electrospun nanofibers are very effective in photocatalysis, particularly TiO₂ fiber shows greater attention in catalytic degradation of VOCs. Adsorption of the VOCs was measured under the Quartz Crystal Microbalance (QCM) which received a great attention for on-line and in-situ detection of VOCs over conventional detection techniques. In this work, we used TiO₂ nano composite fibers for adsorptive degradation of VOCs.