

Cu(II) Removal of Activated Carbon Fibers Modified by Radiation-Induced Graft Polymerization

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In this work, the adsorption behaviors of activated carbon fibers (ACFs) containing chelating functional groups were studied in heavy metal ions removal. The ACFs were modified by electron beam and glycidyl methacrylate (GMA) graft polymerization in order to induce the chelating functional groups. FT-IR and XPS were used for the surface properties of the ACFs. The specific surface area and the pore structure were evaluated from N₂ adsorption data at 77 K. As a result, the relative intensity of oxygen peaks increased with increasing the dose of electron beam. And the specific surface area of the treated ACFs was decreased by the pore blocking of chelating functional groups. The results were indicated that the radicals were risen as the dose of electron beam increased, and increased radicals led to the increase of the chelating functional groups. Also, the heavy metal adsorption of the treated ACFs was significantly increased. It was explained that the increased chelating functional groups led to an increase of the adsorption of heavy metal ions.