APPLICATION OF TAGUCHI OPTIMIZATION METHOD IN THE PREPARATION OF ACTIVATED CARBON BY MICROWAVE TREATMENT

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Abstract. This paper reports on the preparation of activated carbon from walnut shell. Orthogonal array experimental design method was used to optimize the preparation of activated carbon with phosphoric acid by using microwave treatment. The optimization parameters were: microwave power, activation time, phosphoric acid concentration and particle sizes of nut shells. Thermal analysis of the intact and impregnated with phosphoric acid walnut shells was used for the simulation of activation process. Activated carbon with the optimal parameters was obtained, being characterized by gas adsorption method and scanning electron microscopy.

Keywords: activated carbon, walnut shells, microwave radiation, experimental design, analysis of variance.

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