Comprehensive Aproach to Determining the Physical Properties of Granular Activated Carbons

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摘要.

Abstract

The objectives of this research were to identify the physical characteristics of activated carbons manufactured by peat, bituminous coal and coconut shell as well as examine the correlation among these properties. The helium density and mercury density were measured by using the recommended standard methods; in addition, the adsorption isotherms of nitrogen, argon and mercury were reported by using the automatic adsorption apparatus. The results manifested the pore features could be realized from the adsorption isotherm and hysteresis loop of nitrogen. In addition, as the percent of macropore volume was significant, the composite approach would be recommended as an alternative for analyzing pore features. The result of factor analysis implied the characteristic energy of adsorption was associated with the pore size distribution. It intended, except for physical adsorption, other mechanisms might coact on adsorption processes.