

Choma, J., Dziura, A., Jamiola, D., Marszewski, M., Jaroniec, M. Preparation of Mesoporous Carbons with High Specific Surface Area and Large Pore Volume. *Ochrona Srodowiska* 2012, Vol. 34, No. 1, pp. 3–7.

Abstract: Mesoporous carbons were prepared using the hard templating method. Resorcinol with crotonaldehyde and phenol with paraformaldehyde were used as carbon precursors along with colloidal silica as a hard template. The resultant carbons possessed high surface areas exceeding $1500 \text{ m}^2/\text{g}$ for the samples prepared from resorcinol with crotonaldehyde, and approaching $1800 \text{ m}^2/\text{g}$ for those obtained from phenol with paraformaldehyde. All samples exhibited large total pore volumes of about $5 \text{ cm}^3/\text{g}$ and high mesoporosity of about 95%. Pore size distribution functions indicated small amounts of micropores ($\sim 1.5 \text{ nm}$) and predominant amounts of mesopores ($\sim 30 \text{ nm}$). Scanning electron micrographs proved uniformity of spherical mesopores and their random distribution in the carbon matrix. The well developed porous structure of the mesoporous carbons studied makes them feasible for adsorption and catalytic processes, especially for adsorption of large organic molecules.

Keywords: Mesoporous carbons, hard templating, nitrogen adsorption, SEM, surface area.