

Choma, J., Jedynek, K., Jamiola, D., Jaroniec, M. Influence of Carbonization Temperature on the Adsorption and Structural Properties of Mesoporous Carbons Obtained by Soft Templating. *Ochrona Srodowiska* 2012, Vol. 34, No. 2, pp. 3–8.

Abstract: Carbons with uniform mesopores were synthesized by soft templating using a triblock copolymer (Lutrol F127) and two carbon precursors – resorcinol and formaldehyde. Synthesis was carried out under acidic conditions. The main focus of the study was the effect of carbonization temperature (from 400 °C to 850 °C) on the adsorption and structural properties of the carbons obtained. The study has produced the following findings: the rise in carbonization temperature was concomitant with the decline in such porous structure parameters as total pore volume, mesopore volume, pore width and average pore size corresponding with the maximum of the distribution function. Only the specific surface area of the carbons increased with increasing carbonization temperature, to reach a maximal value, 746 m²/g, at 850 °C, owing to the increase in the micropore volume. Comparison of the results of this study with previous data has revealed a similar trend in the behavior of the adsorption parameters. Obtained at different carbonization temperatures, the mesoporous carbons show very good adsorption properties and high potential for successful use in environmental engineering.

Keywords: Mesoporous carbons, synthesis, soft templating, carbonization temperature, porous structure.