Choma, J., Jaroniec, M., Zawiślak, A., Górka, J. Synthesis and Adsorption Properties of Colloid-templated Nanoporous Carbons Obtained Using Vinylidene and Vinyl Chloride Copolymer (Saran). ***Ochrona Srodowiska*** **2009, Vol. 31, No. 1, pp. 3–7.**

Abstract: A simple strategy is proposed for the synthesis of microporous and micro-mesoporous carbons by using colloidal silica (approx. 24 nm in diameter; hard template) and the vinylidene and vinyl chloride copolymer (Saran) as a carbon precursor. For the purpose of comparison, microporous carbon was obtained from the copolymer alone, with no addition of colloidal silica. When colloidal silica was added, the micro-mesoporous carbon obtained *via* this route exhibited a specific surface area approaching 850 m^2/g, whereas the microporous carbon had a surface area of approx. 1000 m^2/g. The micropore and mesopore volumes accounted for about 50% each to the total pore volume of the micro-mesoporous carbon; as for the microporous carbon, the micropore volume was close to 100% of the total pore volume. In both the carbons, the size of micropores approached 1 nm. In the micro-mesoporous carbon the uniform and spherical mesopores were approx. 25 nm in size, which coincided with the size of the colloidal silica used for the synthesis of this material. Nitrogen adsorption measurements have shown that the mesopores were interconnected and accessible to the molecules of this gas in the course of the process. Moreover, it has been demonstrated that the well-developed microporosity was formed during carbonization due to the thermal decomposition of the copolymer (Saran). Apparently, the method proposed can be used for large-scale preparation of micro-mesoporous carbons.

Keywords: Adsorption, micro-mesoporous carbon, synthesis, colloidal silica, vinylidene chloride and vinyl chloride (Saran) copolymer.