

Choma, J., Kalinowska, A., Jedynek, K., Jaroniec, M. Reproducibility of the Synthesis and Adsorption Properties of Ordered Mesoporous Carbons Obtained by the Soft-templating Method. *Ochrona Srodowiska* 2012, Vol. 34, No. 3, pp. 3–10.

Abstract: Soft-templating synthesis of ordered mesoporous carbons under acidic (HCl) conditions was investigated for reproducibility by using a series of eight samples obtained with Lutrol F127 block copolymer as a soft template, and resorcinol and formaldehyde as carbon precursors. Reproducibility was evaluated by analyzing the adsorption properties of the samples prepared *via* the above route. Low-temperature ($-196\text{ }^{\circ}\text{C}$) nitrogen adsorption isotherms were measured and used to evaluate the basic parameters characterizing the porous structure of the carbonaceous materials; namely, specific surface area, total pore volume, micropore and mesopore volumes, micropore and mesopore widths. Errors of the evaluated parameters were estimated in terms of standard statistical analysis, such as standard deviation, arithmetic mean, 0.95 and 0.99 confidence interval for the mean, and coefficient of variation. Statistical analysis has shown that soft-templating synthesis under acidic conditions is reproducible when the coefficient of variation for most of the parameters is lower than 10%.

Keywords: Mesoporous carbons, soft-templating synthesis, low-temperature nitrogen adsorption, statistical analysis, synthesis reproducibility.