

Jedynak, K., Zdenkowski, J., Swiecicka, A., Choma, J. Adsorption Properties Characterization of Ordered Mesoporous Carbons by Inverse Gas Chromatography. *Ochrona Srodowiska* 2015, Vol. 37, No. 2, pp. 3–10.

Abstract: Adsorption properties of ordered mesoporous carbons were studied using inverse gas chromatography (IGC). Four different adsorbents obtained by soft templating with hydrochloric or acetic acid were used, two of them containing particles of silver or gold. Porous structure characteristics of the studied carbons was presented on the basis of experimental isotherms of nitrogen adsorption. Standard parameters and functions of pore volume distribution were determined by Density Functional Theory method (DFT). Additionally, adsorption isotherms of n-hexane, benzene and trichloroethene were determined by IGC method. The highest adsorption for most of the examined carbons was observed for n-hexane, then benzene, while the lowest adsorption was determined for trichloroethene. The mesoporous carbons with silver and gold particles showed the highest adsorption of the tested compounds. This could be related to the strongest interactions between the adsorbate molecules and the carbon surface, determined on the basis of location of maximums of adsorption potential distribution functions for n-hexane, benzene and trichloroethene.

Keywords: Adsorption, pore volume distribution, gas chromatography, n-hexane, benzene, trichloroethene.