

Jedynak, K., Choma, J. Application of Ordered Mesoporous Carbon Materials to Removal of Organic Pollutants from Water Solutions. *Ochrona Srodowiska* 2013, Vol. 35, No. 3, pp. 3–8.

Abstract: Adsorption processes involving ordered mesoporous carbons (OMCs) can be applied to removal of various organic substances from water solutions. These materials possess unique adsorption properties resulting from their large specific surface area and high pore volume. Furthermore, they exhibit uniform and accessible pores of desired sizes as well as demonstrate high thermal stability and chemical inertness. Their well-developed and active surface can be easily modified, allowing synthesis of adsorbents with desired properties. Ordered mesoporous carbon materials with functional groups may serve as advanced materials for water treatment. These materials, following adsorption of harmful substances, may regenerate *via* extraction, *e.g.* with ethanol or toluene or *via* thermal treatment. Their initial adsorption capacity of a starting material remains mostly unchanged. Ordered mesoporous carbons containing nickel or iron nanoparticles are very interesting adsorption materials due to their magnetic properties that allow easy separation from the solution being purified. Ordered mesoporous carbon materials may become adsorbents of the next generation. They are likely to replace classic active carbons used for adsorption-based water treatment procedures.

Keywords: Carbon materials, synthesis, adsorption properties, water treatment, organics removal.