

## Numerical analysis of the effect of the activation process on the formation of the microporous structure

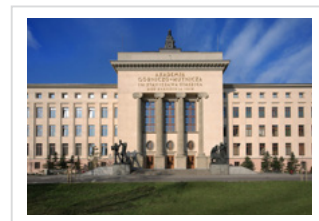


**Matthias Kaiser**

Stanford University School of Medicine,  
USA

### Biography

Mirosław Kwiatkowski in 2004 obtained Ph.D. degree at the AGH university of science and technology in Krakow (Poland), and in 2018 D.Sc. degree at the Wrocław University of technology (Poland). Currently Dr. Mirosław Kwiatkowski is working as an assistant professor at the AGH-UST. His published work includes more than 45 papers in reputable international journals and 100 conference proceedings.



### Abstract

The activated carbons and the adsorption processes taking place on their surface have been the object of widespread research and application. In particular these materials are used to rid the air of substances that are harmful to human health, including for protection from poisonous substances and for environmental protection in the processes of removing harmful substances from waste gases. The porous structure and functional properties of the activated carbons are dependent on the structure of the original raw material. As a consequence, the choice of suitable material is no less important than the selection of adequate production method and the determination of optimum process conditions. Therefore, a search for new raw materials that would be useful in the production of the activated carbons has been under way, and particular attention has been paid in this regard to biomass waste from food and timber industries and agriculture. The work presents numerical evaluation of the effect of the used activator and the raw material on the formation of the microporous structure of the activated carbons. The numerical calculations were carried out based on the adsorption isotherms of nitrogen. On the basis of the research and analyses, a significant effect of the type of the activating agent used as well as the raw material on the formation of the porous structure and, consequently, on the adsorptive properties of the produced activated carbons were observed.

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