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An Analysis of the Effect of the Temperature of Activation with Phosphoric Acid on the Development of the Porous Structure of Activated Carbons Produced from the Common Polypody

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The paper presents the results of research into the effect of activation process temperature on the development of the porous structure of activated carbons produced from the leaves of the common polypody by way of chemical activation with H_3PO_4 . The research was based on the isotherms of adsorption of nitrogen, carbon dioxide and methane. The porous structure of the activated carbons produced in the process was analyzed using the BET, the DR and the DFT methods, as well as the original LBET method, in which the microporous structure was analyzed on the basis of three isotherms of adsorption of nitrogen, carbon-dioxide and methane defined for the particular monoliths of activated carbon has been evidenced in the research in question, the proposed approach offers a substantial advantage compared with the application of only the most common nitrogen adsorption isotherms to carry out the analyses. It results from the fact that, as shown in the research, the structural parameters arrived at on the basis of the different adsorbates depart significantly from one another, which testifies to differences in the properties of the particular adsorption systems.

Biography:

Dr. 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 90 conference proceedings. He is the editor in chief of *The International Journal of System Modeling and Simulation (United Arab Emirates)*, an associate editor of *Micro & Nano Letters Journal (United Kingdom)* and a member of the organizing committees in many international conferences in Europe, Asia and USA. Dr. Mirosław Kwiatkowski is also a regular reviewer in most reputable scientific journals. His research interest include: chemical technology, chemical and physical chemistry, nanotechnology, material science and engineering, mathematical modeling of the adsorption process, computer science, electrical energy markets and problems connected with economics and management.