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Macroscale superlubricity enabled by graphene coated surfaces

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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 of 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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Biography

Zhenyu Zhang is a professor of School of mechanical engineering at dalian university of technology, China. His research work focuses on ultraprecision grinding, chemical mechanical polishing, nanoscale precision manufacturing and nanotribology. Dr. Zhang was awarded the excellent young scientists fund of national natural science foundation of China in 2014, changjiang scholar program of ministry of education of China in 2016, thousand talents of zhejiang province, China in 2015, distinguished young scholars for science and technology of dalian city, liaoning province, China in 2016, hundred talents of hundreds, thousands and ten thousands talents program of liaoning province, China in 2016, program for new century excellent talents in university of China in 2013. Now he is an associate editor of applied nanoscience (SCI IF: 3.198).

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