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Phenol removal from contaminated water by various active carbons

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Phenols belong to the most common water pollutants in the industrial effluents thus they have become the significant contaminant of ground waters. Another source of phenols as contaminants used to be the application of the underground coal gasification technology (UCG). Phenolic compounds can be also found in the waste water generated from petroleum and petrochemical, pharmaceutical, plastic, rubber proofing, steel and phenol production industries. [1]

For the contaminated water treatment the active carbons (Supersorbon and Norit) were applied. The efficiency of the individual sorbents was also tested on the model contaminated waters with the different concentration of phenol. Applied sorbents have been thoroughly characterized by various methods as Nitrogen physical adsorption, Mercury porosimetry and Helium pycnometry.

Experiments were carried out under varying experimental condition of particle size, pH, temperature, etc. For the exact description of the phenol sorption on active carbons the kinetic equilibrium was determined. Sorption activity of Supersorbon and Norit was tested on the phenol removal from the UCG real waste water.

This study is focused on evaluation of the individual sorbent efficiency and capacity for phenol removal from contaminated water.

[1] P. S. Nayak and B. K. Singh, Desalination, 207, 71 (2007).

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