Geophysical Research Abstracts
Vol. 13, EGU2011-13207, 2011
EGU General Assembly 2011

Application of images analysis to the quantification of surface properties of adsorbent materials prepared from paper industry waste materials

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Adsorption on activated carbon is one of the most effective methods for the removal of contaminants from water. Many efforts have been focused on low cost carbon-based adsorbents production from pyrolysis of waste materials due to the high cost of commercial activated carbons.

Previous works carried out by our research group have showed that paper industry waste materials could be an interesting precursor of carbon-based adsorbents which can be used to removal metals and organic compounds from water. The removal percentage can be related with different properties as oxygenated surface groups, superficial charge density, BET surface area, average pore diameter, mesopore and micropore volume of adsorbents. The objective of this study is to study the use of image analysis to estimate the pore volume and other surface properties of carbon-based adsorbents prepared from paper industry waste materials.