# PHYSICAL POST-ACTIVATION OF NANOPOROUS CARBON

Maike Käärik[1], Jaan Leis[1] and Siret Malmberg[2]

[1]*Institute of Chemistry, University of Tartu, Ravila 14a, 50411 Tartu, Estonia*

[2] *Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate 5, 19086 Tallinn, Estonia*

maike.käärik@ut.ee

Because of a wide range of applications, the carbide-derived carbon (CDC) materials have been an attractive area of research. The nanostructure and pore size distributions of CDC vary in wide range depending on the precursor carbide and synthesis conditions [1]. Further tuning of the pore size distribution can be made by so-called physical post-activation *via* etching of the carbon with selected oxidizing agents.

This study reconfirms that the porous structure of CDC in terms of surface area and average pore size distribution is controlled by the carbide chlorination and by varied CDC post-modification conditions. It is shown that nanoporous CDC can be successfully post-activated by using the $H_2O$-based physical activation, whereas the efficiency of activation noticeably depends on the pore size distribution of preceding carbon. Physical activation increases both, the total pore volume and microporosity, as appears from adsorption isotherms (Fig. 1). The surface area of the CDC can be controlled in the range of 1000–2000 $m^2\ g^{-1}$. This study also confirms that the etching of carbon during post-activation slightly affects the structural order, but does not increase the oxygen concentration on the carbon surfaces.

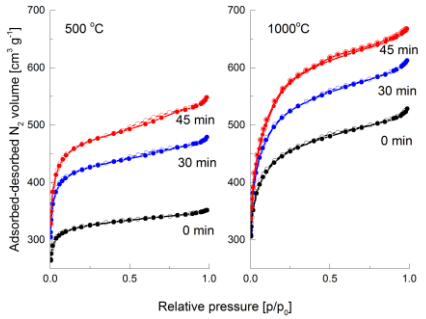


*Fig.1 Nitrogen adsorption isotherms of precursor and activated CDCs.*

References

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