

CHARACTERISATION OF AMORPHOUS MATERIALS

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Background

Nitrogen adsorption is a standard tool for the determination of the pore size distribution (PSD) of porous materials, in particular activated carbons. Although nitrogen adsorption isotherms may be routinely determined at 77K to high precision, the extraction of the PSD remains problematic. In recent years we have proposed improved methods of isotherm analysis [1-5] based on molecular methods (principally density functional theory (DFT) and molecular

simulation) which have improved the reliability of PSD's determined from nitrogen isotherms at 77K, especially for pores in the nanometre range.

Results and Discussion

In this paper we extend the analysis of the PSD by considering other gases such as argon and carbon dioxide and higher temperatures (see figure 1) for the typical activated carbon AX21.

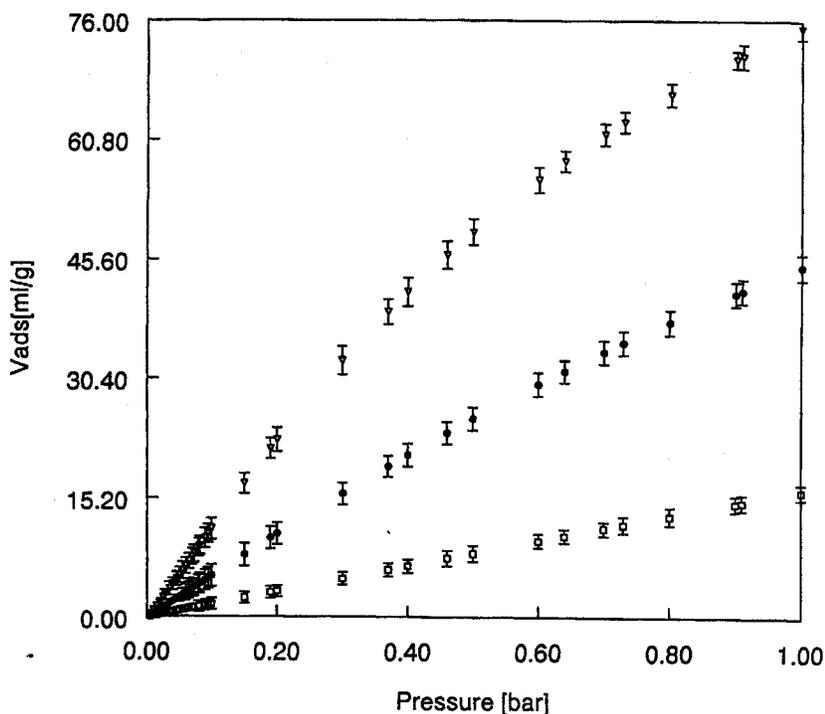


Figure 1. Adsorption of carbon dioxide (triangles), methane (full circles) and nitrogen (squares) on AX21 at 293.1K

References

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