

## **Porosity of silica monoliths with tailored mesopores of ink bottle shape determined by nitrogen adsorption and positron annihilation lifetime spectroscopy**

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The comparison of pore size distributions obtained with the use of two porosimetric methods: low temperature nitrogen sorption (LN2) and positron annihilation lifetime spectroscopy (PALS), was performed for porous silica monoliths. Four investigated samples were prepared under various synthesis conditions. Nitrogen sorption showed the presence of bottle-shaped pores in all investigated samples. In addition, it seems, that the presence of methanol during synthesis influences porosity to a greater extent than organic additives.

Quite good agreement between the LN2 and PALS results was observed only for the silica monolith synthesized with  $\beta$ -cyclodextrins as pore directing agent. The biggest discrepancy in the results obtained from these two techniques was observed for the silica gel synthesized with no additives. The origin of such discrepancies, taking into account the shape of pore size distribution and deficiencies of data analysis techniques, is discussed.