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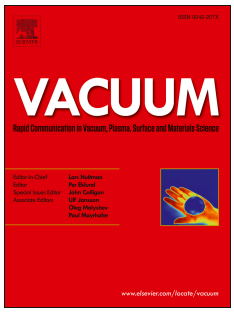

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Mass flow rate and permeability measurements in microporous media

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Abstract

The transient method of the mass flow rate measurements through a microporous media is developed and analyzed. This method is based on the constant volume technique and the exponential fit of the pressure evolution in each tank which allows calculating the permeability directly. The pressure relaxation time, a single fitting parameter, is introduced and its behaviors are analyzed in a large pressure range. By measuring the pressure relaxation time for one gas, the permeability of a microporous sample can be derived for the other gases. With the actual experimental setup, we measured the mass flow rate through the microporous media in the range $5 \cdot 10^{-7} - 5 \cdot 10^{-12}$ [kg s^{-1}] and the permeability in the range $10^{-14} - 10^{-11}$ [m^2].

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