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Acoustic Frequency Response Method for the measurement of Fast Adsorption  
- Diffusion Processes. Theoretical Treatment

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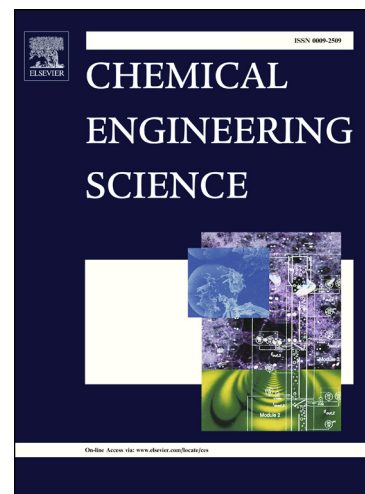
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## Acoustic Frequency Response Method for the measurement of Fast

## Adsorption - Diffusion Processes. Theoretical Treatment

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A model for sound propagation through an array of regularly spaced cylindrical pores in an adsorbent microporous material is proposed in this work. The objective is to use this model in conjunction with measurements taken in an impedance tube to determine the adsorbate diffusivity in the adsorbent microporous material. The model and the measurement procedure described in this work form the basis for extending the Frequency Response Method (Yasuda, 1976) to audible frequencies. The solution of the model is obtained by applying the low-reduced frequency method (Tijdeman, 1975) in combination with a cell approach (Umnova et al., 2009). An example of its applicability to a CO<sub>2</sub>-Silicalite system is discussed.

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