

Porosity / Tortuosity meter

Porosity and tortuosity are essential parameters for the characterisation and simulation of the acoustic behavior of porous materials.

In association with LAUM (Laboratoire d'Acoustique de l'Université du Maine), CTTM has developed a test bench which allows to determine four parameters that describe the micro-geometry of porous materials.

Principle

The tested sample is excited with an ultrasonic pulse :

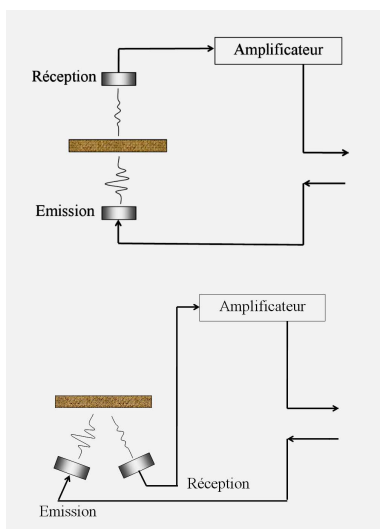
- the measurement of the transmission coefficient and the time delay of the pulse allows to calculate the tortuosity and the viscous and thermal characteristic lengths,
- the measurement of the reflection coefficient is directly related to the porosity.

Specifications

- Acquisition and Analysis software Windows compatible
- Automatic test procedure, including measurement quality indicators.
- Required sample size : 20 x 30 cm.

Devices included

- Four ultrasonic transducers, signal amplifiers, wires
- Data Acquisition Board
- Acquisition and Analysis Software



Principle of the setup