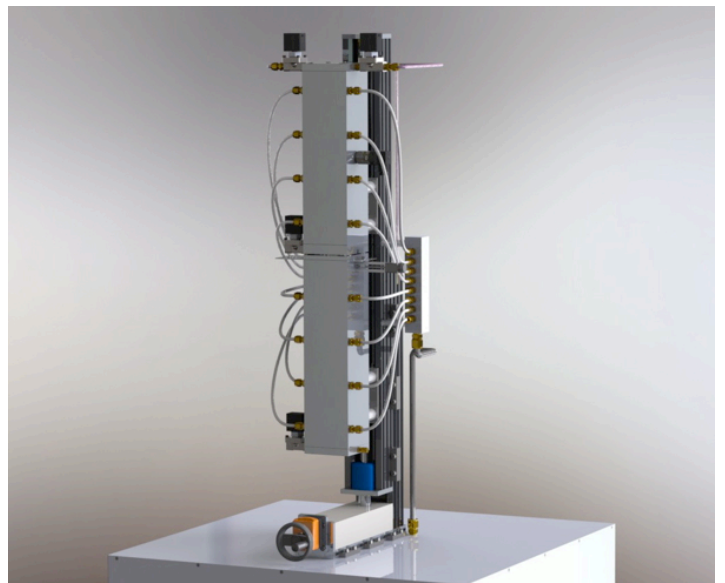
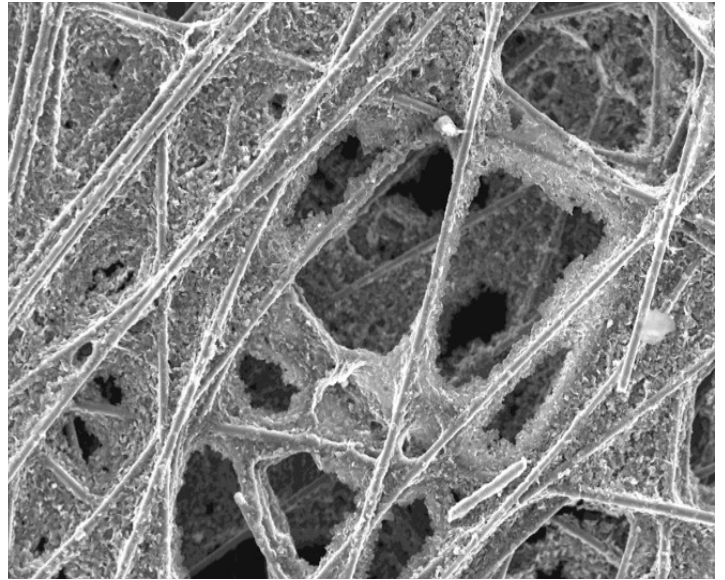




# Effective Gas Diffusion Measurement



**Waterloo**  
TECHNICAL INSTRUMENTS INC.

Advanced thermophysical property measurement equipment and  
analysis services for the study of porous media.

[www.waterlooTI.com](http://www.waterlooTI.com)

# + high accuracy

## for the measurement of thin porous media

We have developed a process uniquely suited for measuring the effective diffusion coefficient of sub-millimeter thick materials such as the **gas diffusion layer** (~200 $\mu$ m), **microporous layer** (~50 $\mu$ m), and **catalyst layer** (~10 $\mu$ m) of PEM fuel cells. Based on the

Loschmidt cell method, our process achieves a measurement accuracy of up to  $\pm 3\%$  ( $\pm 10\%$  for catalyst layers).

No other experimental techniques have demonstrated this level of precision for thin porous materials.

# + testing services

## for a range of operating conditions

The effective diffusion coefficient can be measured for a range of operating conditions that include,

- Temperature (-25 - 80 °C)
- Compression (0-10 bar)
- Pressure (0-5 atm)
- Humidity (0-100% R.H.)
- Binary gases (N<sub>2</sub>/O<sub>2</sub> and many others!)
- Knudsen and Fickian diffusion regimes

# + send us your samples

## for expert analysis

WaterlooTI maintains a full service thermophysical measurement laboratory, serving clients in the academic and industrial sectors. We provide expert analysis and interpretation of results, modeling of

transport processes, and other R&D related activities for measurements performed.

Our team is committed to providing outstanding service and technical support.

**Contact us to learn more!**

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