The PMI Advanced

Gas Diffusion Permeameter
DFP-100-1

Not just products...solutions!

APPLICATIONS

Many applications of porous materials require very low gas permeability through these materials. Such applications are found in many industries including biotech, healthcare, pharmaceutical, food, packaging, environmental, power sources and chemical industries. Determination of the magnitudes of flow rates of multiple gas through materials used in these applications is important for evaluation of products.

PRINCIPLES OF OPERATION

The basic principle is based on the laws of diffusion.

$$F = - M \, [dp/dx]$$

where F is the flux across the sample, [dp/dx] is the pressure gradient across the thickness, and M is a measure of diffusivity. The instrument is designed toaccurately measure pressure and flow rate. The sample chamber is evacuated. Gas pressure maintained at a constant value on one side of the sample is measured and the increase in pressure on the other side is also measured. The data are used to compute flow rate of gas per unit area of the sample per unit time as a function of pressure gradient. The gas flow rate is computed using the following relation:

$$F = \left(\frac{VT}{P_s T_s} \right) \left(dp/dt \right)$$

Sample

Gas at constant pressure

Increase in Gas pressure
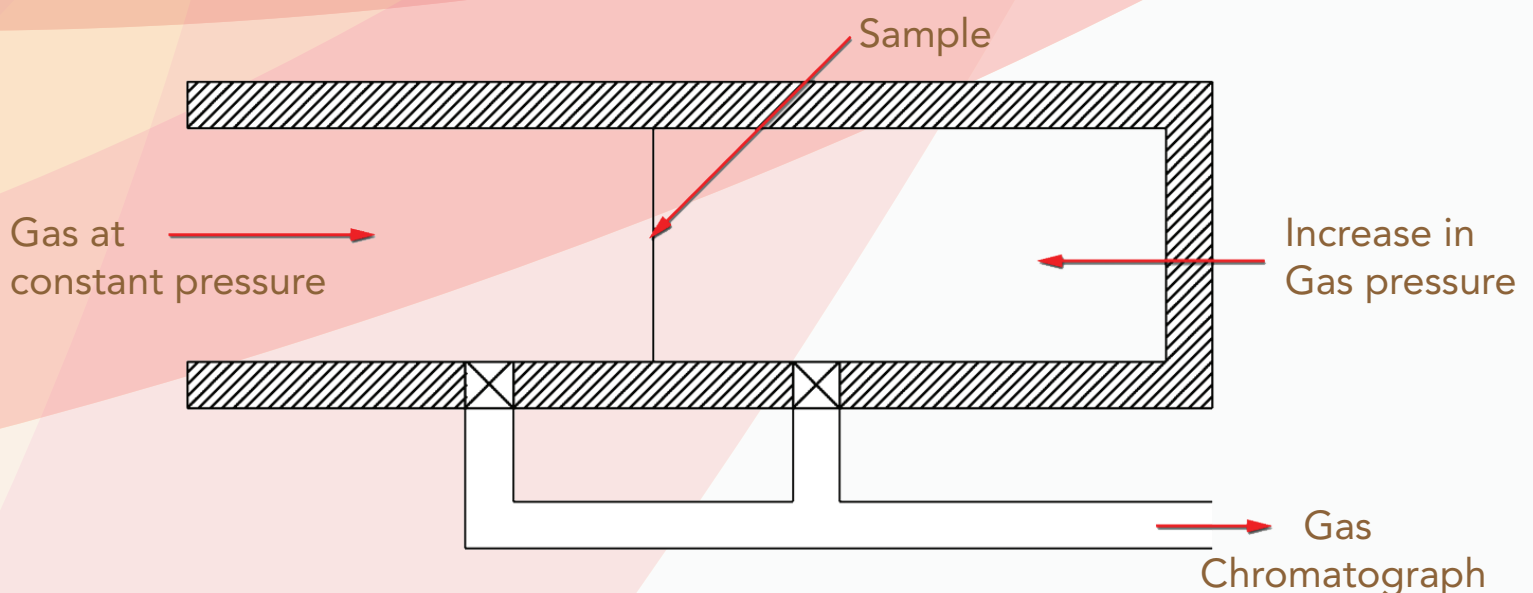
Gas Chromatograph

Gas chromatograph is used to find the ratio of differrent gases coming through

- Permeability Range : 0.0001 - (cc/min/cm^2)

- Sample Size : 1.75" - 2.5" diameter

- Pressure Range: 100 psi maximum differential pressure

- Pressure Transducer Range :
  High Pressure Side: 0 - 100 psi
  Low Pressure Side: 0 - 10 Torr
  Accuracy (both): 0.15% of reading
  Resolution: 1 in 60,000

- Pressurizing Gas mixture: multiple non-corrosive gas

- Vacuum Pumping System : Vacuum to 0.002 Torr

- Stock Tank: Built in, Low Pressure Sample Cell Size: 50 - 100 cc (specific to machine)

- Weight : 500 lbs (specific to machine)

- Dimensions : 60" H x 30" W x 28" D (specific to machine)

- Power Requirements : 220 VAC, 50/60 Hz (Others available)

FEATURES

- Fully Automated

- Very little operator involvement

- Robust. Minimal maintenance

- Accuracy of pressure measurement is 0.15% of reading

- The sample chamber is maintained at a constant temperature for yielding reliable & reproducible data.
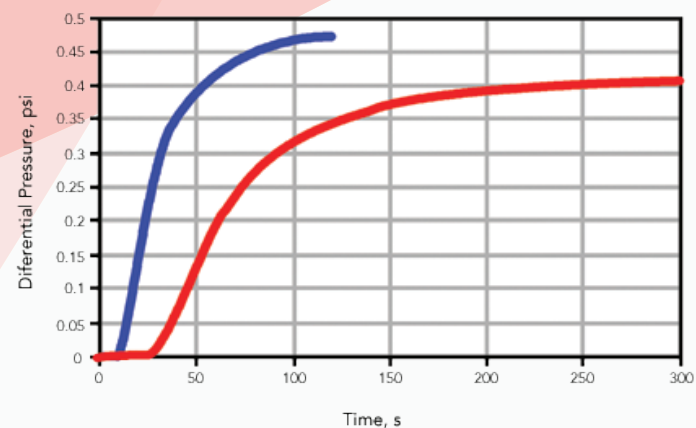
Flow of different gases through membrane

SALES & SERVICES

Our sales team is dedicated to helping our customers find which machine is right for their situation. We also offer custom machines for customers with unique needs. To find out what we can do for you, contact us.

We are committed to customer support including specific service products, short response times & customer specific solutions. To quickly & flexibly meet our customer's requirement, we offer a comprehensive range of services.

Customize your machine today!

Disclaimer : Other specifications of this product are also available. Specifications subject to change without notice. Design subject to change without notice.

The most advanced, accurate, easy to use and reproducible Diffusion Permeameters in the world.

Celebrating

35

years

of solutions

PROUDLY MADE IN USA

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