

Multi-Perm

- O₂ and H₂O or
- O₂ and CO₂ or
- H₂O and CO₂



Brief Introduction

Multi-Perm is the only instrument on the market, based on patented technology, that performs permeability measurements on two different kinds of gases. Multi-Perm is offered with two sensors to be chosen by the customer either oxygen, carbon dioxide or water vapour. In this way Multi-Perm has the ability to characterize the barrier properties of the film with two different gases testing exactly the same surface, avoiding the need of substituting the sample.

- 2 sensors inside
- O₂ – H₂O or
- O₂ – CO₂ or
- H₂O – CO₂
- Multi-Perm systems with one chamber only can be upgraded with a third sensor to a Triple-Perm system
- Analysis start independent for each sample
- Automatic generator and humidity controls
- Broad measuring range
- Long life detectors

With this instrument it is possible to measure plastic films, monolayer or multilayer barrier films, metallised or with surface coating, laminated or coextruded, especially those used for food, beverage, pharmaceutical and electronics packaging applications.

Multi-Perm, as well as performing tests of permeability through thin films, can be equipped with modular accessories to carry out measurements on packaging containers of various types such as bag-inbox, PET bottles and packages.

Multi-Perm stands as the ideal solution for companies that produce or use barrier packaging and want the highest performance in a single instrument at competitive prices.

Professional Software

The special software Multi-Perm-Solution guarantees maximum simplicity of operation.

Moreover it is possible to plan a list of measurements on the same sample at different test conditions that are going to be run automatically by the instrument. In this way any human action is reduced to the minimum and any possible errors eliminated.

The software stabilizes the parameters with high accuracy and precision over all the measurement.

Testing conditions (temperature, relative humidity, concentration, ...) are shown both as numeric data and graphical representation and saved in an HTML file and in text file to allow the full compatibility with any other software.

All the gas flows are electronically controlled so that the instrument is immune to changes of pressure both in the gas line and atmospheric.

Choosing Multi-Perm is the best choice that makes the life in the laboratory easy.

Technical Specifications

Item	Multi-Perm	
Test Range	Test Range O2	0.01-1000 cm ³ ·m-2·24h-1·bar-1 (unmasked) 0.2-25000 cm ³ ·m-2·24h-1·bar-1 (masked)
	Test Range CO2	0.25-9000 cm ³ ·m-2·24h-1·bar-1 (unmasked) 0.0013-100 cm ³ ·pkg-1·24h-1 50-180000 cm ³ ·m-2·24h-1·bar-1 (masked)
	Test Range H2O	0.002-100 g·m-2·24h-1 (unmasked) 0.04-2000 g·m-2·24h-1 (masked)
Specimen Area	50 cm ²	
Number of	1 or 2 independant chambers	
Specimen	<2.5 mm (customization is available)	
Test Temperature	10°C ~ 50°C	
Temperature	±0.1°C	
Test Humidity	O2, CO2, H2O: 0%, 5%~95%; N2: 0, 30-90%	
Humidity Accuracy	±1.5%RH	
Carrier Gas	99.999% High-purity nitrogen 5.0 (outside of supply scope)	
Carrier Gas Flow	12~36 ml/min (Automatic control)	
Gas Supply	≥0.2 MPa	
Port Size	1/8" metal tube	
Power Supply	220VAC 50Hz / 120VAC 60Hz	
Instrument	410 mm (L) x 610 mm (W) x 310mm (H)	
Net Weight	45 kg	

Standards O2 – H2O

DIN 53380-3, ASTM D3985, F2622, F1927, F1307, JIS K-7126, ISO 15105-2 for OTR measurements and with the norms ASTM F1249, TAPPI T557, JIS K-1729, ISO 15106-2.

Standards H2O – CO2

ASTM F2476 for CO2TR measurements and with the norms ASTM F1249, TAPPI T557, JIS K-1729, ISO 15106-2 for WVTR

Standards O2 – CO2

DIN 53380-3, ASTM D3985, F2622, F1927, F1307, JIS K-7126, ISO 15105-2 for OTR measurements, with the norm ASTM F2476 for CO2TR measurements