

SINGLE  
CELL  
MODEL



## MultiPerm

O<sub>2</sub>, CO<sub>2</sub> & H<sub>2</sub>O

FOR FILMS

Misuratore di permeabilità all'O<sub>2</sub>, alla CO<sub>2</sub> e all'H<sub>2</sub>O con controlli integrati di temperatura ed umidità relativa.

O<sub>2</sub>, CO<sub>2</sub> and H<sub>2</sub>O permeability tester with embedded controls of temperature and relative humidity.

MultiPerm è il primo ed unico strumento sul mercato con tecnologia brevettata in grado di eseguire misure di barriera a due diversi tipi di gas. MultiPerm viene infatti offerto con due sensori a scelta tra ossigeno, anidride carbonica e vapor d'acqua ed elimina la necessità di dover spostare il campione, consentendo così di caratterizzare le proprietà barriera a due distinti gas della stessa esatta superficie.

Con questo strumento è possibile misurare film plastici, film barriera monostrato o multistrato, metallizzati o dotati di speciali coating superficiali, laminati o co-estrusi utilizzati prevalentemente nell'industria alimentare, delle bevande, farmaceutica ed elettronica.

Oltre a effettuare misure di permeabilità su film, MultiPerm, equipaggiato con accessori modulari può effettuare analisi su contenitori formati quali bag-in-box, bottiglie in PET e recipienti in genere.

MultiPerm rappresenta la soluzione ideale per le aziende che producono o utilizzano imballaggi barriera e vo-

MultiPerm is the first and unique instrument present on the market, based on patented technology, that performs permeability measurements on two different kinds of gases. In fact, MultiPerm is offered with two sensors to be chosen by the customers among oxygen, carbon dioxide or water vapour. In this way MultiPerm allows to characterize the barrier properties of the film at two different gases testing exactly the same surface avoiding the need of substituting the sample.

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

MultiPerm, besides performing tests of permeability through thin films, can be equipped with modular accessories to carry out measurements on packaging containers of various types like bag-in-box, PET bottles and packages.



## TECHNICAL DETAILS MULTIPERM

### Test Range O<sub>2</sub>

0.01-7500 cm<sup>3</sup>·m<sup>-2</sup>·24h<sup>-1</sup>·bar<sup>-1</sup> (unmasked)  
0.2-150000 cm<sup>3</sup>·m<sup>-2</sup>·24h<sup>-1</sup>·bar<sup>-1</sup> (masked)

---

### Test Range CO<sub>2</sub>

0.25-18000 cm<sup>3</sup>·m<sup>-2</sup>·24h<sup>-1</sup>·bar<sup>-1</sup> (unmasked)  
20-360000 cm<sup>3</sup>·m<sup>-2</sup>·24h<sup>-1</sup>·bar<sup>-1</sup> (masked)

---

### Test Range H<sub>2</sub>O

0.002-100 g·m<sup>-2</sup>·24h<sup>-1</sup> (unmasked)  
0.04-2000 g·m<sup>-2</sup>·24h<sup>-1</sup> (masked)

---

### Test sample size

50 cm<sup>2</sup> - About 2,5 mm thickness max

---

### Test temperature range

10-50 °C ± 0.1 °C

---

### Relative humidity O<sub>2</sub>/CO<sub>2</sub> (O<sub>2</sub>/CO<sub>2</sub> side)

0%, 5-95% ± 1.5%

---

### Relative humidity H<sub>2</sub>O (moist N<sub>2</sub> side)

5-95% ± 1.5%

---

### Carrier flow (N<sub>2</sub>)

10-75 ml/min automatically controlled

---

### Carrier gas

N<sub>2</sub> 5.0 + 1%H<sub>2</sub> mix

---

### O<sub>2</sub> / CO<sub>2</sub> purity gas

Purity ≥ 99.95% / ≥ 99.99%

Residual humidity required < 0.5%

---

### N<sub>2</sub> pressure

1.5-2.0 bar

---

### O<sub>2</sub> / CO<sub>2</sub> pressure

1.5 bar

---

### Gas connections

2/3 x Standard Ham-Let 1/8"

---

### Software

LabView based with USB interface

---



MultiPerm è conforme alle norme DIN 53380-3, ASTM D3985, F2622, F1927, F1307, JIS K-7126, ISO 15105-2 per la misura di O<sub>2</sub>TR, alla norma ASTM F2476 per le misure di CO<sub>2</sub>TR ed alle norme ASTM F1249, TAPPI T557, JIS K-1729, ISO 15106-2 per le misure di WVTR.

MultiPerm complies with the norms DIN 53380-3, ASTM D3958, F2622, F1927, F1307, JIS K-7126, ISO 15105-2 for OTR measurements, with the norm ASTM F2476 for CO<sub>2</sub>TR measurements and with the norms ASTM F1249, TAPPI T557, JIS K-1729, ISO 15106-2 for WVTR measurements.

### PC with preinstalled software

Windows OS and LCD monitor

---

### Power supply

100-240 V, 50/60 Hz (800 W max.)

---

### Apparatus size (cm)

45 W/63 D/32 H without PC

---

gliono le più alte prestazioni in un unico strumento, ad un prezzo competitivo. Lo speciale software MultiPerm ExtraSolution® garantisce la massima semplicità operativa. Infatti è possibile programmare una sequenza di misure da eseguire sullo stesso campione, a diversi gas ed in condizioni differenti e che saranno eseguite automaticamente in sequenza dal software.

Scegliere MultiPerm significa operare una scelta intelligente che semplifica la vita in laboratorio, riduce i costi e libera gli spazi!

MultiPerm 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. The special software MultiPerm-ExtraSolution® guarantees the highest working simplicity. You can plan a list of measures on the same sample at different gases and conditions that are going to be run automatically by the software. Choosing MultiPerm means operate a smart choice that makes the life into laboratory easier and reduces both costs and room!

EXTRASOLUTION by PermTech

Via Del Bagno 16 55036 Pieve Fosciana (LU), Italy info@permtech.it www.permtech.it  
Tel: +3905831646078 Tel: +3903311976173 Mob: +393389028862 Fax +3905831641255