

# PERMEATION MEASUREMENT INSTRUMENTS AND SERVICES

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## Permeation measurement instruments for sale

**Oxygen**

**OX-TRAN  
OpTech-O2 P**

**Water vapour**

**PERMATRAN-W  
AQUATRAN**

**Carbon dioxide**

**PERMATRAN-C**

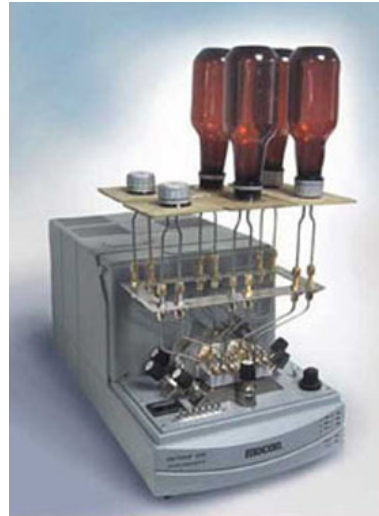


## Differentiation criteria

- **Number of measurement cells**
- **Type of sensor and compliance with international standards**
- **Measurement range**
- **Films only or films and packages**
- **Relative humidity range**
- **Temperature range**

# Number of measurement cells

1, 2, 6 or 7 cells



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## Type of sensor and measurement range

The sensor must be suitable for the product to be measured.



0 - 1000 g



1 - 150 kg



## Type of sensor and standards

The most relevant international standards stipulate the use of a certain **type of sensor**. In our instruments we use different types of sensors, coulometric, non-coulometric electro chemical, infrared, RH or optical ones.

Our Coulox sensors are using 100 % of the permeating oxygen and work absolute. Thus they do not need calibration. This enables highest sensitivities to measure ultra-high barriers.

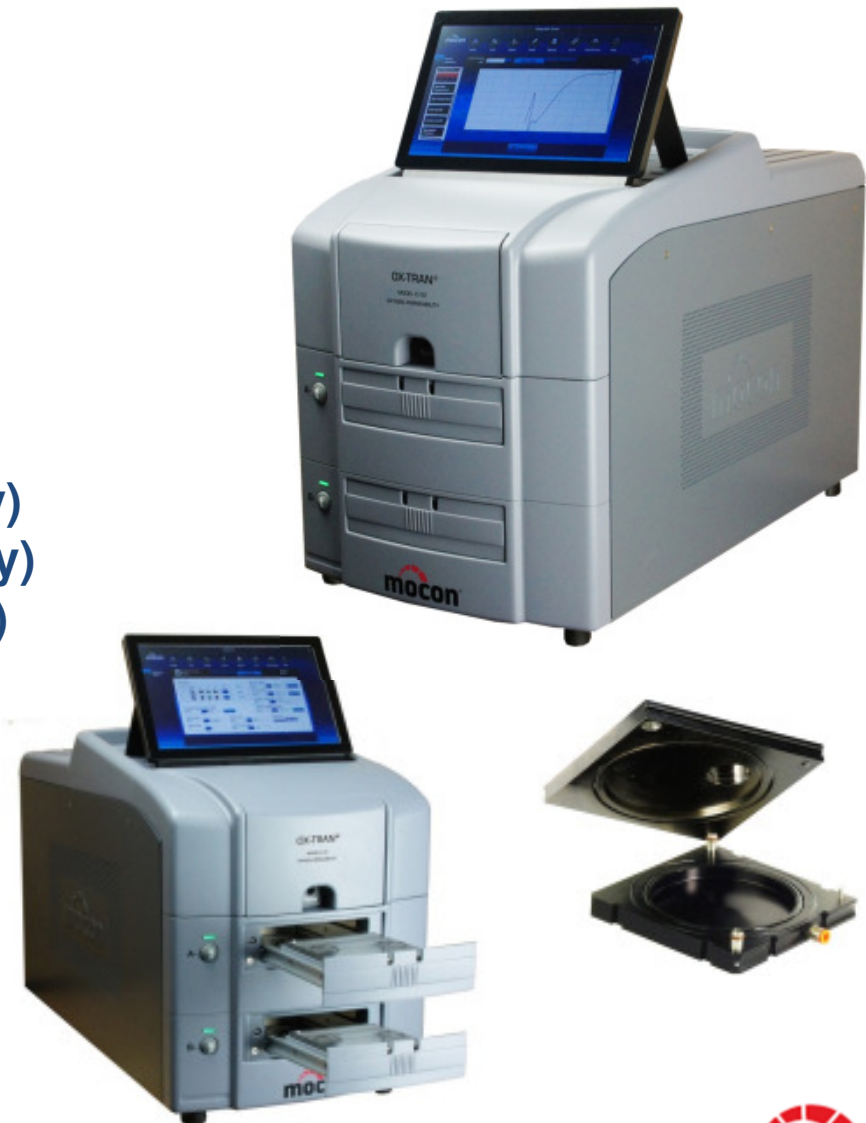


## Models for oxygen transmission rate measurement

- **OX-TRAN 2/22**
- **OX-TRAN 2/12**
- **OX-TRAN 2/61**
- **OX-TRAN 702**
- **OX-TRAN 1/50**
- **OpTech-O2 P**

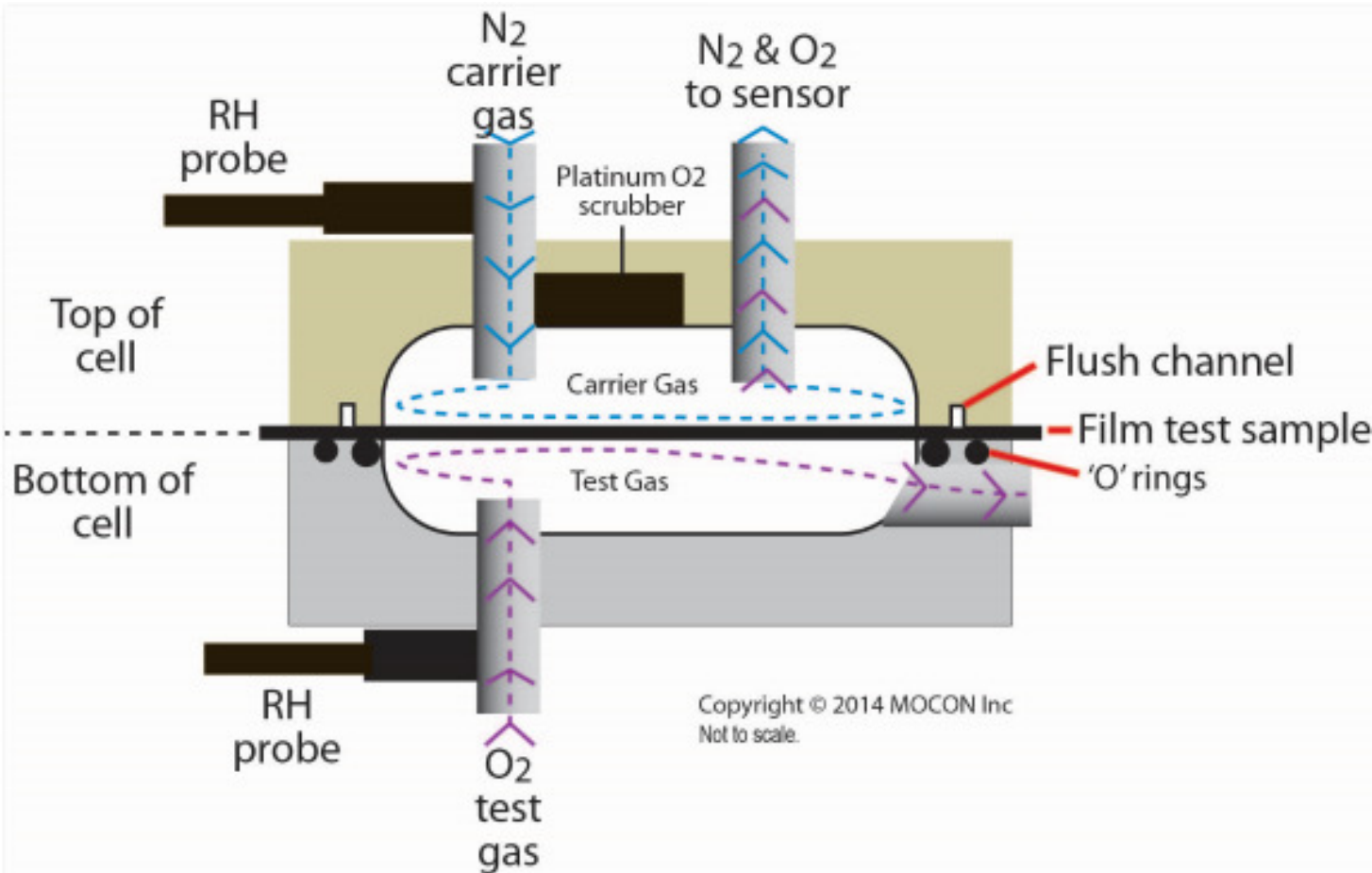
## OX-TRAN 2/22

- 2 cells of 50 cm<sup>2</sup> each
- stand alone or networked with computer software
- film and package testing
- automatic and advanced mode
- Coulox sensor
- 10X: 0,0005 – 200 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- L: 0,005 – 2.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- H: 0,05 – 2.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- 10 – 40 °C
- films: 0 – 90 % rH
- packages: ambient
- ASTM D 3985
- ASTM F 1927
- ASTM F 1307
- ISO 15105-2
- DIN 53380-3 ...





# OX-TRAN 2/22



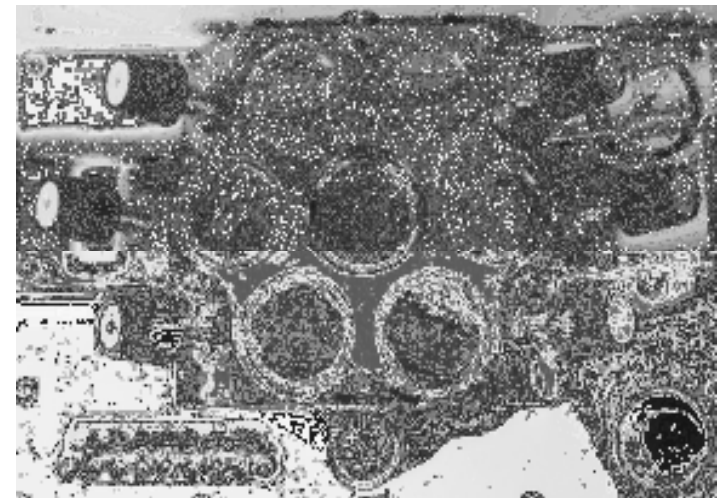
## OX-TRAN 2/12

- 2 cells of 50 cm<sup>2</sup> each
- film and package testing
- electrochemical sensor (non-coulometric)
- 0,1 – 144.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- 10 – 40 °C
- films: 0 or 35 – 90 % rH  
packages: ambient
- ASTM F 2622, not ASTM D 3985



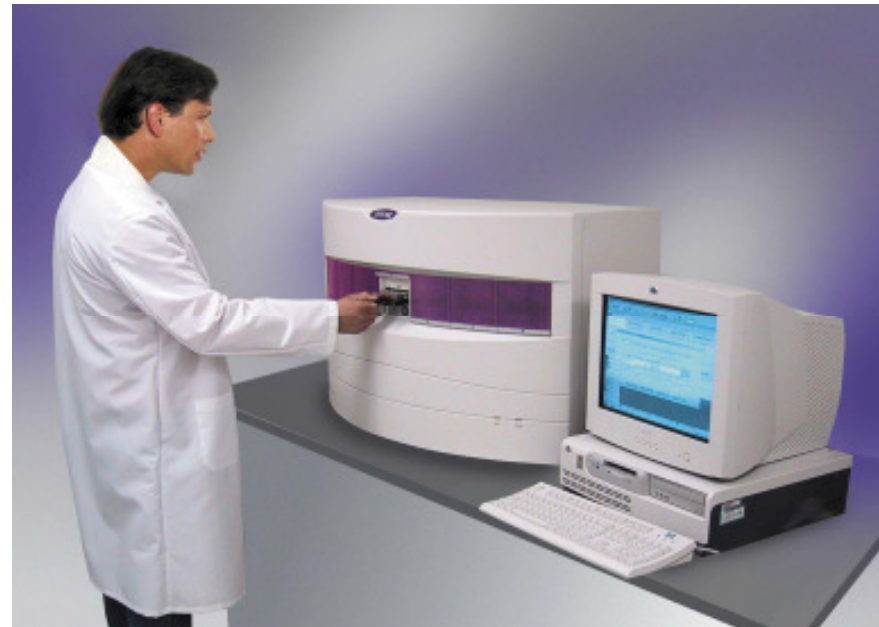
## OX-TRAN 2/61

- 6 cells of 10 cm<sup>2</sup> each
- cells can be interconnected to one big cell
- computer with software needed
- up to 10 modules linked to 1 computer
- film and package testing
- Coulox sensor
- 0,5 – 1.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)  
0,1 – 200 cm<sup>3</sup>/(m<sup>2</sup> \* day)  
if all 6 cells linked together
- 20 – 65 °C
- 35 – 90 or 100 % rH (O<sub>2</sub> side only)  
packages: ambient
- ASTM D 3985  
ASTM F 1927  
ASTM F 1307  
ISO 15105-2  
DIN 53380-3...



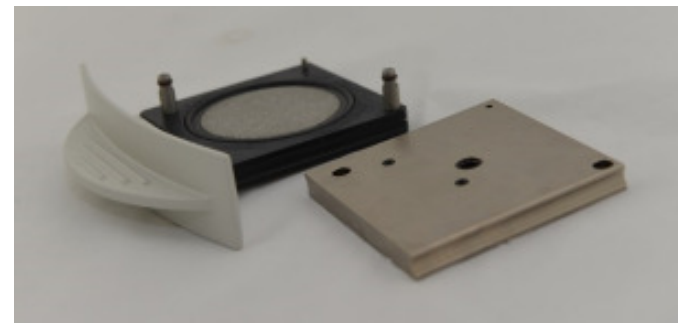
# OX-TRAN 702

- 7 cells of 50 cm<sup>2</sup> each
- computer with software needed
- up to 10 modules linked to 1 computer
- film and package testing
- Coulox sensor
- 0,01 – 2.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- 5 – 50 °C with external bath
- dry gas only
- ASTM D 3985
- ASTM F 1927
- ASTM F 1307
- ISO 15105-2
- DIN 53380-3
- ...

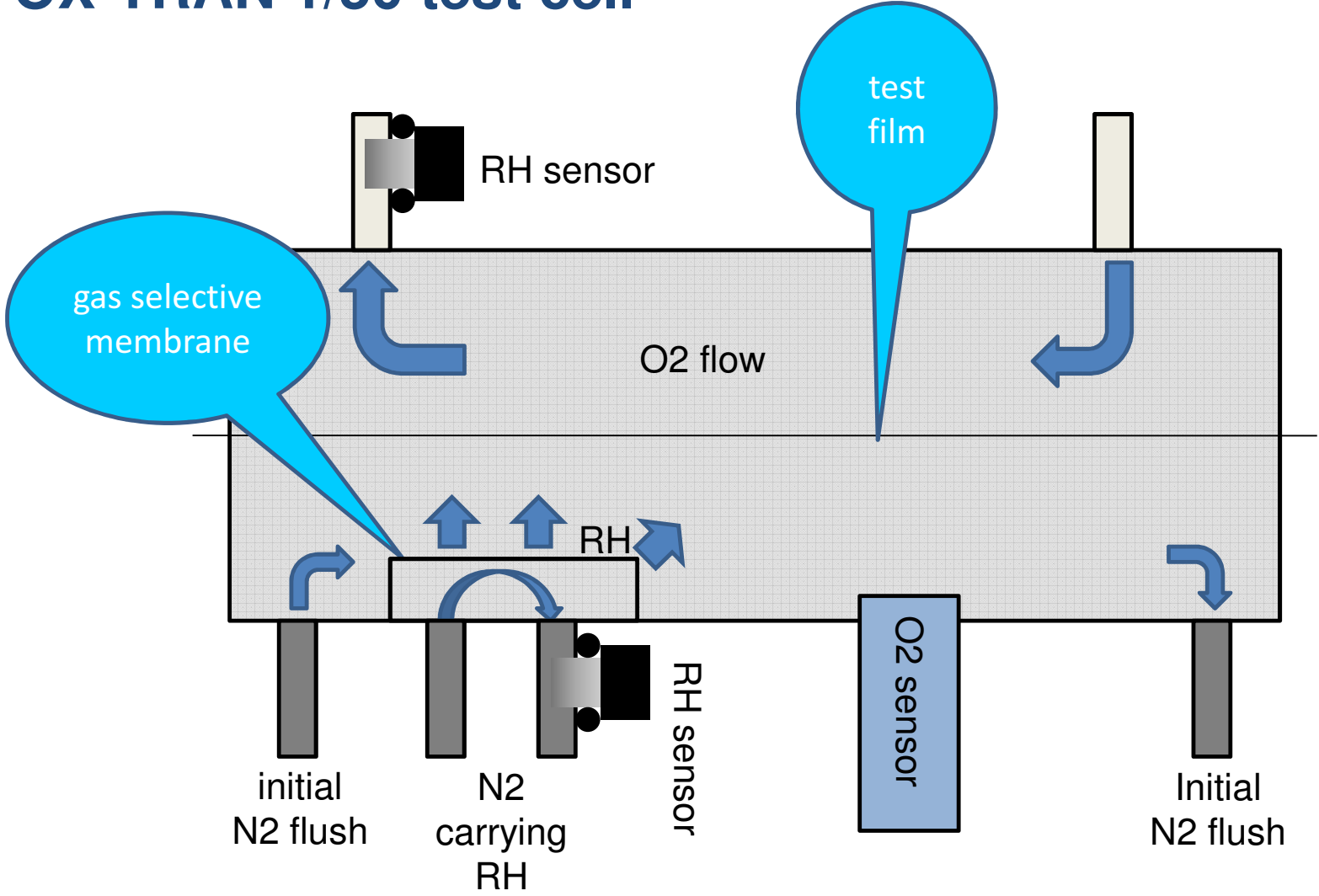


## OX-TRAN 1/50

- 1 cell of 50 cm<sup>2</sup>
- stand-alone system
- only film testing
- coulometric sensor
- 0,1 – 200 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- 10 – 40 °C
- 5 – 90 % RH or dry
- printer interface
- ASTM D 3985
- ASTM F 1927
- ISO 15105-2



# OX-TRAN 1/50 test cell

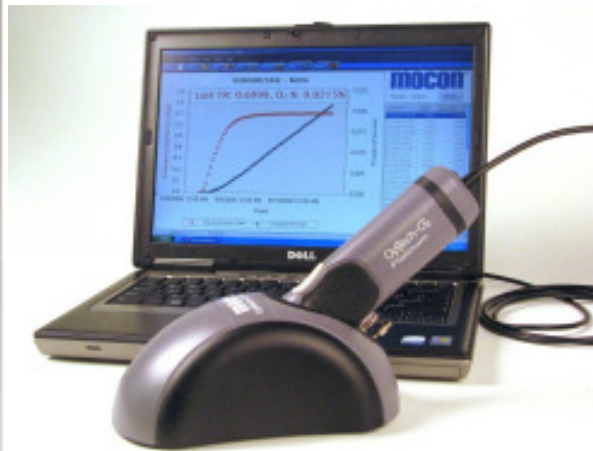


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# OpTech-O2 P

- 3 different kinds of sensors
- headspace, DO and OTR measurement
- handheld, portable, fast
- 1 – 10.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- no temperature and humidity control
- ASTM F 2714-08



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mocon



## Models for water vapour transmission rate measurement

- **AQUATRAN 3**
- **PERMATRAN-W 3/34**
- **PERMATRAN-W 3/61**
- **PERMATRAN-W 398**
- **PERMATRAN-W 101K**
- **PERMATRAN-W 700**
- **PERMATRAN-W 1/50**



# AQUATRAN 3

- 2 cells of 50 cm<sup>2</sup> each
- film and package testing
- TruSeal technology
- **coulometric AQUATRACE sensor**
- **$5 * 10^{-5} - 5 \text{ g}/(\text{m}^2 * \text{day})$**
- 10 – 40 °C, 35 – 90 rH (films)
- 5 – 50 °C, 100 % rH
- ISO 15106-3



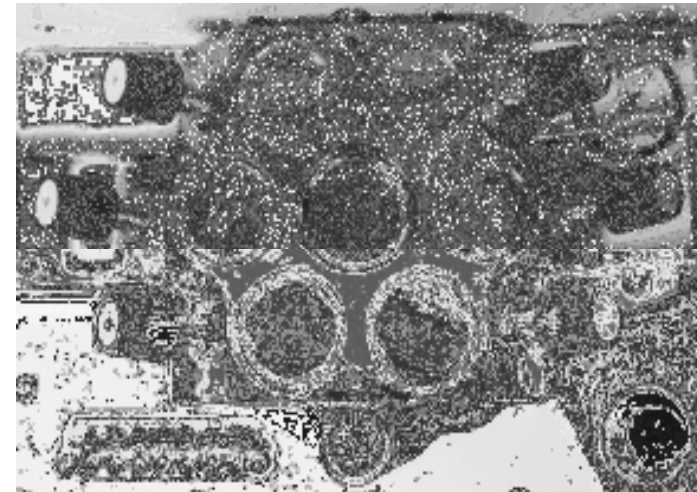
# PERMATRAN-W 3/34 G

- 2 cells of 50 cm<sup>2</sup> each
- stand alone or networked with computer software
- film and package testing
- automatic and advanced mode
- TotalCal™
- TruSeal technology
- removable cells
- pressure modulated infrared sensor
- 0,005 – 1.000 g/(m<sup>2</sup> \* day)
- 10 – 40 °C
- films: 5 – 90 or 100 % rH
- packages: ambient
- ASTM F 1249
- ISO 15106-2
- TAPPI T 557
- ...



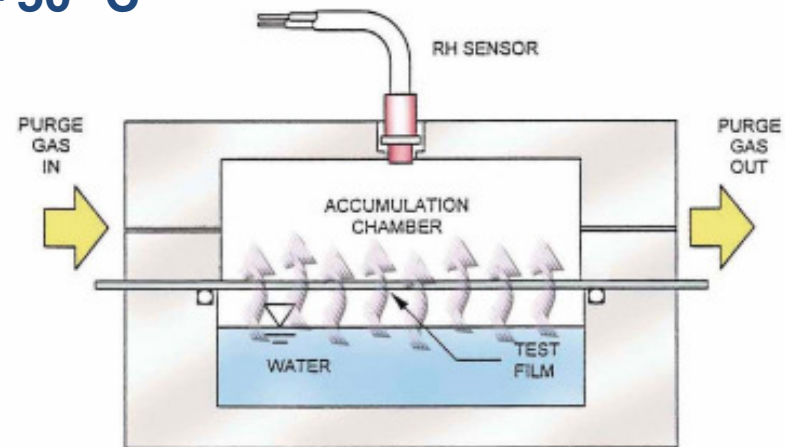
## PERMATRAN-W 3/61

- 6 cells of 10 cm<sup>2</sup> each
- cells can be interconnected to one big cell
- computer with software needed
- up to 10 modules linked to 1 computer
- film and package testing
- pressure modulated infrared sensor
- 0,01 – 500 g/(m<sup>2</sup> \* day)
- 20 – 65 °C
- 35 – 90 or 100 % rH
- ASTM F 1249
- ISO 15106-2
- TAPPI T 557
- ...



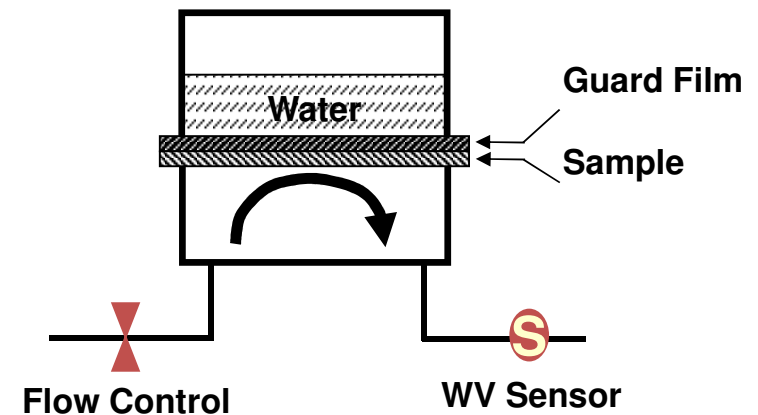
# PERMATRAN-W 398

- 2 cells of 50 cm<sup>2</sup> each
- computer with software needed
- up to 10 modules linked to 1 computer
- film testing only
- accumulation method
- capacitive RH sensor
- 0,05 – 5.000 g/(m<sup>2</sup> \* day)
- S model: 5 – 50 °C  
A model: (ambient + 5 °C) – 50 °C
- 50 – 90 % rH
- ASTM E 398  
ISO 15106-1



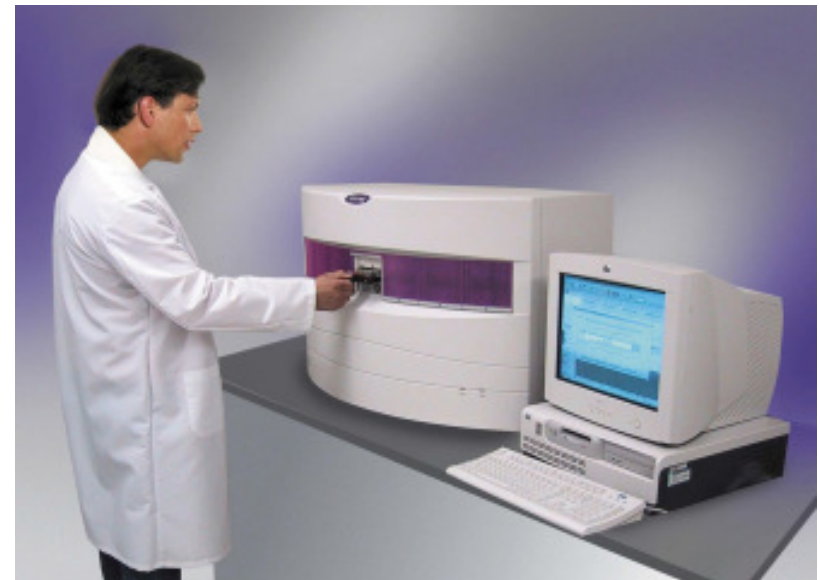
# PERMATRAN-W 101K

- 6 cells of 10 cm<sup>2</sup> each
- computer with software needed
- film and package testing
- capacitive RH sensor
- 500 – 100.000 g/(m<sup>2</sup> \* day)
- 20 – 50 °C
- WSP 070.4.R3  
ASTM D 6701-01



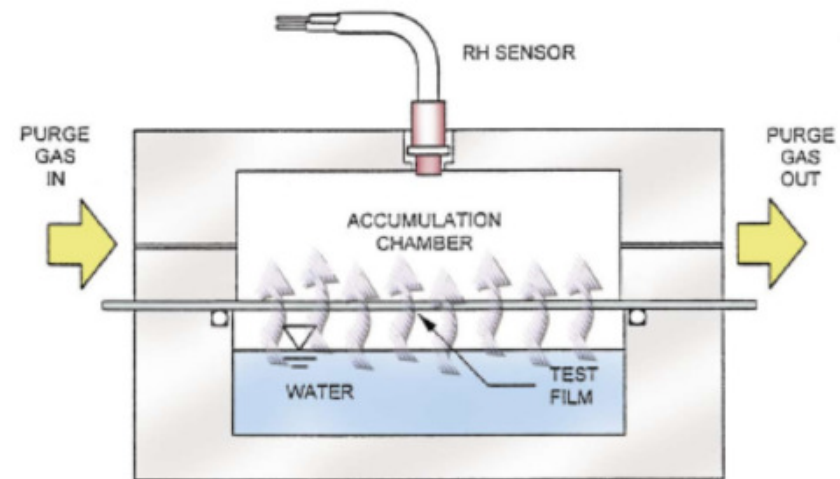
# PERMATRAN-W 700

- 7 cells of 50 cm<sup>2</sup> each
- computer with software needed
- up to 10 modules linked to 1 computer
- film and package testing
- pressure modulated infrared sensor
- 0,005 – 1.000 g/(m<sup>2</sup> \* day)
- 5 – 50 °C with extern. bath
- 100 % rH
- **ASTM F 1249**
- **ISO 15106-2**
- **TAPPI T 557**
- ...



# PERMATRAN-W 1/50

- 1 cell of 50 cm<sup>2</sup>
- stand-alone system
- only film testing
- capacitive RH sensor
- 0,1 – 1.000 g/(m<sup>2</sup> \* day)
- temp.: 10 – 40 °C (G model)  
5 – 50 °C (W model)
- 30 – 95 % rH
- accumulation method
- ASTM E 398  
ISO 15106-1  
TAPPI T 523





# Carbon dioxide transmission rate measurement

## Available model

**PERMATRAN-C 4/41 (T)**



## PERMATRAN-C 4/41

- 2 cells of 50 cm<sup>2</sup> each
- computer with software needed
- up to 10 modules linked to 1 computer
- film and package testing
- pulse modulated infrared sensor
- 4/41: 1 - 50.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- 4/41 T: 4.000 - 800.000 cm<sup>3</sup>/(m<sup>2</sup> \* day)
- films: (ambient + 5 °C) – 50 °C
- packages: 10 – 40 °C
- ASTM F 2476
- DIN 53380-4



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