ACCESSORY BROCHURE

FILM TEST CARTRIDGES:
DUAL CELL

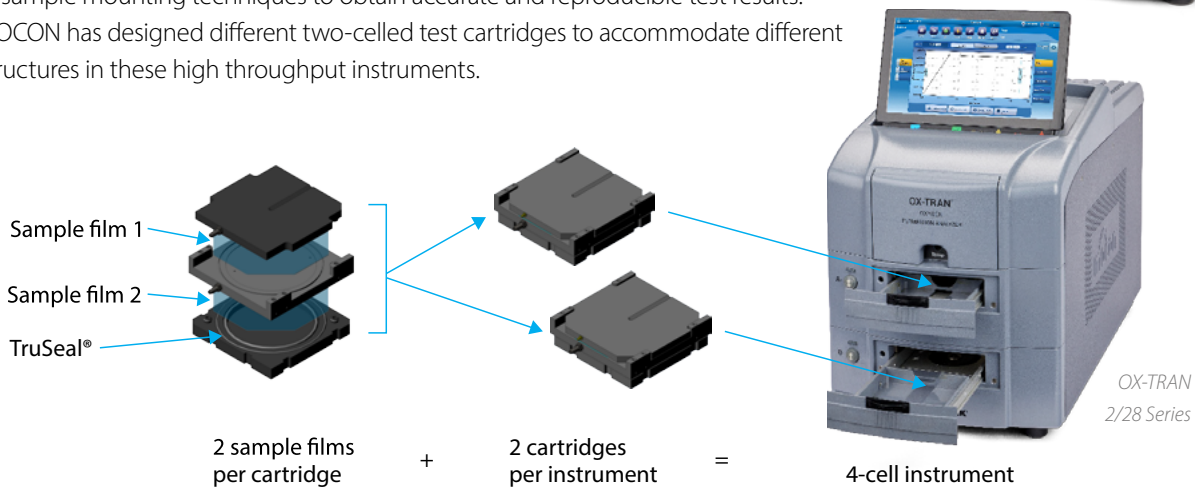
Increase Throughput

Most permeation test objectives are either research and development or quality control-focused. Optimizing test throughput is critical to efficiency for every testing laboratory.
Our OX-TRAN® 2/28 Oxygen Permeation Analyzer and the AQUATRAN® 3/38 Water Vapor Permeation Analyzer were designed for high-throughput testing, merging efficiency with quality control.

AQUATRAN 3/38 Series

The 2/28 and 3/38 feature an innovative dual film cartridge from AMETEK MOCON, which combines two test cells into a single cartridge. This allows for more than double the testing capacity of legacy and single-cell models with the exact same compact footprint.

Not all film samples are created equal. Film attributes such as surface roughness, thickness and barrier level effect sample mounting techniques to obtain accurate and reproducible test results.
AMETEK MOCON has designed different two-celled test cartridges to accommodate different material structures in these high throughput instruments.



OX-TRAN 2/28 Series

DUAL CELL CARTRIDGES
COMBINING ACCURACY WITH EFFICIENCY

Quality: If you can't measure it you can't control it.

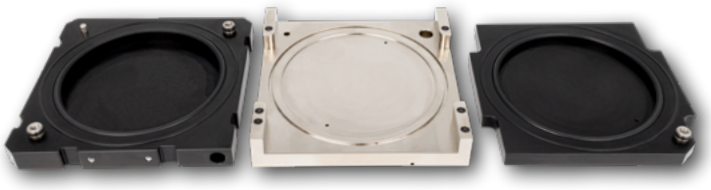
Having the ability to accurately determine the barrier properties of packaging materials is a critical first step in driving innovation and identifying areas for process optimization. The OX-TRAN 2/28 H/HR and AQUATRAN 3/38 H accommodate moderately high to moderately low barriers encompassing most packaging barrier levels. These instruments optimize high throughput barrier testing allowing compliance and cost reduction objectives to be met in a timely manner.

50 cm^2 Cartridges (default):
Larger test area correlates to better overall representation of material barrier properties

The double-layer cartridge test cell allows four film samples, up to 20 mils thick, to be tested with maximum low-end instrument sensitivity.

Benefits

- Traditional test area (50 cm^2) for all film permeation analyzers
- Extra cartridges allow pre-mounting of samples to save time
- Larger surface area offers higher barrier sensitivity
- Can be used in both the 2/28 and 3/38 instuments



50 cm^2 Cartridge

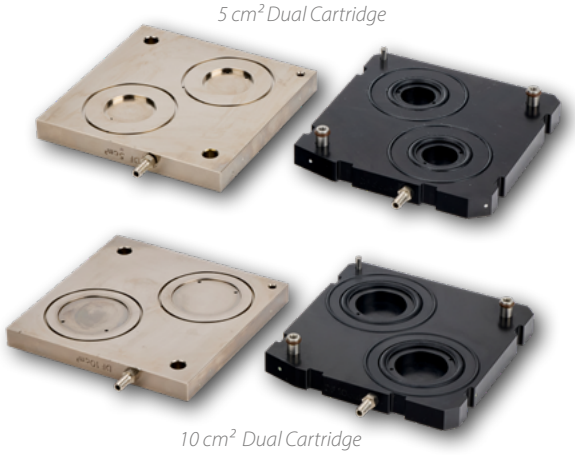
Dual 10 cm^2/5 cm^2 cartridges (reduced area):
Efficiently testing lower barrier films.

These side-by-side dual cartridges provide increased test throughput for smooth surface films. The 10 cm^2 test area increases the high-end detection limit by a factor of 5, while the 5 cm^2 cartridge increases the high-end limit by 10X. Increased test throughput allowing four film samples to be analyzed simultaneously.

Benefits

- Ability to test rubber structures for oxygen transmission rate (OTR)
- Reduced test area facilitates analyses for higher transmitting films
- Accommodates testing for limited sized films
- Reusable cartridge replaces masks
- Able to test samples up to 120 mil (3 mm) thick

5 cm^2 Dual Cartridge

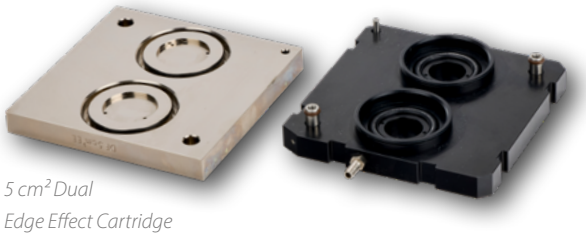


10 cm^2 Dual Cartridge

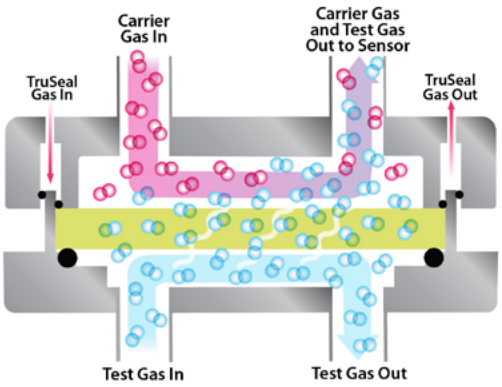
LOW-BARRIER FILM TESTING
INCREASING TEST RANGE WITH REDUCED AREA

Dual 5 cm² Edge Effect Cartridge (EEC):
Testing of paper-based films

The reduced area (5 cm²) EEC works well for testing barrier properties of coated paper films (with smooth surfaces); since most paper-based films are lower barrier structures the 5 cm² test area increasing the high-end detection range by a factor of 10. These two-celled cartridges may allow up to 8 film samples per day since a high percentage of these structures may reach a steady state inside of 8 hours.



5 cm² Dual Edge Effect Cartridge



Edge Effect Cartridge blocking edge diffusion of paper-based film

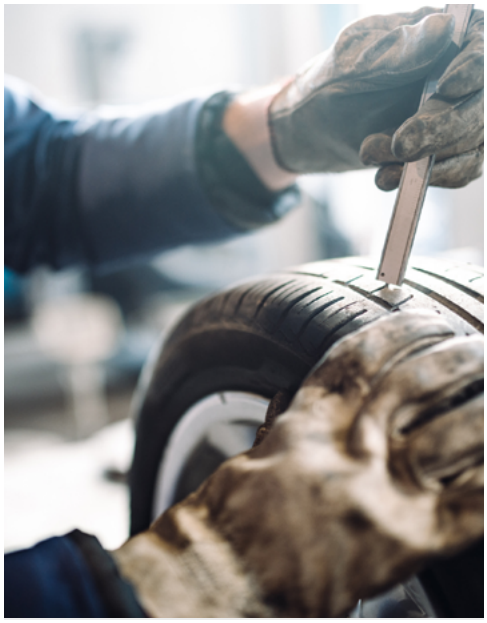
Benefits

- Physically blocks out edge diffusion from ambient atmosphere
- Works well for analyzing paper-based films with smooth surface finishes
- Non-consumable-like masks
- Reduced test area accommodates high transmitting paper-based structures

Applications

Optimizing testing efficiency for moderately high to lower barriers is what this instrument was designed for. The high throughput permeation analyzers offer testing solutions for a wide range of applications, from snack foods to cosmetic packaging to tire bladders. After initially profiling the material, setting up custom truncated tests to maximize throughput allows the user to optimize quality assurance and quality control data to ensure product performance and shelf life. The versatile array of film cartridges provides testing solutions from coated-paper films to metallized structures to high transmitting materials (e.g. vent liners).

Snack packaging



Rubber quality testing

CHOOSING A CARTRIDGE
BASED ON APPLICATION NEEDS

Choosing the right cartridge for your film

Understanding the level of permeant transmission is the most critical aspect when choosing the correct cartridge to meet testing objectives. For example, if your materials have OTR values between 1,000 – 1,250 cc/(m^2 • day), the Dual Film (DF) 5 cm^2 reduced area cartridge would be a better fit than the 10 cm^2 DF cartridge because the high-end ranges are 2,000 and 1,000 cc/(m^2 • day) respectively.

Secondly, one must consider the type of film desired to be tested. Coated paper structures may work well with the 5 cm^2 Edge Effect Cartridge (EEC): although if the film surface is rough, the sample will need to be masked and tested with the default 50 cm^2 cartridge. Ultimately, testing best practices can be determined by vetting your samples in our lab prior to purchase.

Instrument	Units	50 cm^2 Standard	5 cm^2 Edge Effect*	10 cm^2 Reduced Area*	5 cm^2 Reduced Area*
OX-TRAN 2/28 H	cc/m^2 • day	0.05 to 200	0.5 to 2000	0.25 to 1000	0.5 to 2000
	cc/(100 in^2 • day)	0.003 to 12.9	0.03 to 129.0	0.015 to 64.5	0.03 to 129.0
OX-TRAN 2/28 HR	cc/m^2 • day	0.05 to 200	0.5 to 2000	0.25 to 1000	0.5 to 2000
	cc/(100 in^2 • day)	0.003 to 12.9	0.03 to 129.0	0.015 to 64.5	0.03 to 129.0
AQUATRAN 3/38 H	g/m^2 • day	0.05 to 100	0.5 to 100	0.25 to 500	0.5 to 100
	g/(100 in^2 • day)	0.003 to 6.45	0.03 to 64.5	0.03 to 32.25	0.03 to 64.5
	Part Numbers				
	Each	Precise RH: 051-810 100% RH: 052-045	Precise RH: 054-652	Precise & 100% RH: 054-582	Precise & 100% RH: 054-581
	Set of 2	Precise & 100% RH: 054-080	-	Precise & 100% RH: 054-548	Precise & 100% RH: 054-547

*Effective test area and test range are approximate, see cartridge user guide for more details.

Our experts listen to your needs and offer customized solutions.

At AMETEK MOCON we continually expand our extensive cartridge line based on customer testing requirements to ensure accurate and consistent test results. With over 55 years of industry experience behind the designs, our interchangeable cartridges address general industry challenges as well as specific customer requests.

AB-PPS-0173-Film Test Cartridges: Dual Cell 0625-1.1

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