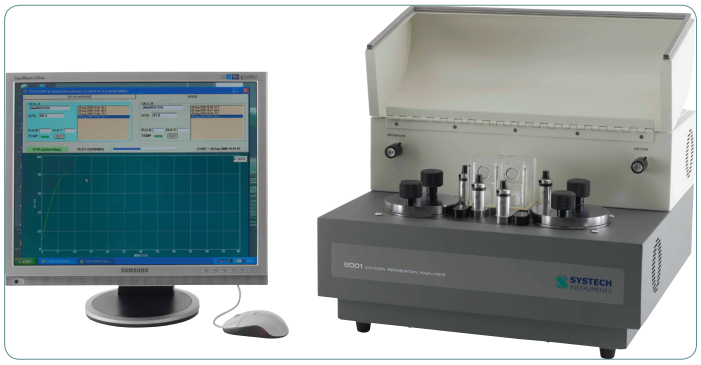
8000 SERIES – OXYGEN PERMEATION ANALYZERS



Modular systems for precision oxygen analysis of packaging film barriers

Applications

- Barrier films
- PET bottles
- Containers
- Closures
- Flexible pouches
- Bags

Features & benefits

- Analytical Systems Manufactured Traceable to NIST.
- System validation with certified gas or film for speed and convenience.
- Widest measurement range in the market.
- Flow, temperature and humidity control for ultimate responsiveness and repeatability
- Fast permeation results.
- Coulometric oxygen sensor enhances analytical precision.
- Intuitive Windows based software.
- For medical and pharmaceutical permeation testing, we offer software which conforms to 21CFR Part 11.
- No liquid coolants, catalysts or special gas mixtures required.

Standards

- ASTM F2622-08
- D-3985 F-1927
- F-1307
- ISO 15105-2
- DIN 53380
- JIS K-7126

D-60-05-OPA8000 | 10-2019

Widest measuring range

Systech Illinois 8000 series analyzers offer the widest measurement range in the market.

- Ideal for research and development testing with accurate and repeatable results.
- Offers the speed required for use in Quality Control testing.
- Measurement Range from
  - » 0.005 cc/m2/day to 432,000 (8001L).
  - » 0.008 cc/m2/day to 432,000 (8001/2 & 3).
- Up to five Expansion Modules available to increase testing throughput.

Coulometric oxygen sensor

- Extremely fast purge down time.
- Accurate and precise readings at the lowest levels.
- The highest quality sensor in the market with the lowest replacement cost.

Precision control

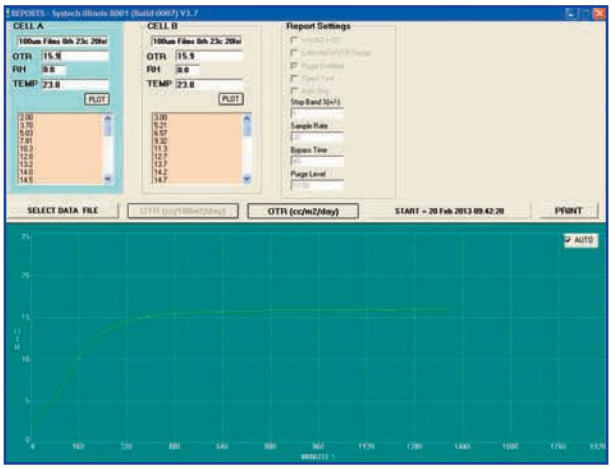
Our leading analyzers offer precision temperature, humidity and flow control providing consistent and repeatable test conditions.

- Test gas and carrier gas flow is controlled by premium electronic mass flow controllers.
- Wide sample temperature range from 41°F to 122°F.
- Fastest changeover from wet to dry sample runs.
- The precise Relative Humidity control offers a range of 0 to 100%, controllable between 20 to 90% RH.
- No need for liquid coolants, catalysts or expensive gas mixtures - just simple Nitrogen and Oxygen.

Software

The intuitive Windows based software offers:

- Easy input and recall of operating parameters and test protocols.
- User-friendly data acquisition and storage for quick results.
- Complete system diagnostics.

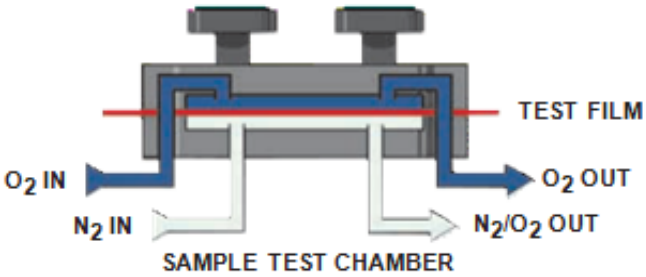


Test results

Customer	High Quality Barrier Films		
Date	20/02/2012		
Instrument	Model 8001		
	OTR	Test Conditions	
Sample	cc/m²/day	Temperature	RH
Sample 1	14.5	23°C	0%
Sample 2	14	23°C	0%

Principle of Operation

Utilizing our proprietary coulometric sensor technology to detect oxygen transmission rates samples are clamped or attached to a diffusion chamber. Pure oxygen (99.9%) is then introduced into the upper half of the chamber while an oxygen-free carrier gas flows through the lower half. Molecules of oxygen diffusing through the sample into the lower chamber are conveyed to the sensor by the carrier gas. This allows a direct measurement of the oxygen without using complex extrapolations. Oxygen transmission rate of the test sample is displayed as either cc/m2/day or cc/100in2/day.



New to the 8000 Oxygen Permeation Range

80001L

Combines the outstanding quality of the model 8001 with the benefits of the new 'L' coulometric oxygen sensor.

- New oxygen sensor enhances analytical precision.
- Widest oxygen permeability measurement range in the market.
- Up to five Expansion Modules available to increase testing throughput

8700 & 8701 RANGE FOR BOTTLES AND PACKAGES

- The ultimate solution for fast and reliable oxygen permeation testing for multiple bottles, packages or films.
- Saves out-of-specification production time. Measurement of 11 samples simultaneously individually started, stopped or delayed.
- Expandable to 66 measurement chambers (using up to 5 expansion units) when higher throughput is required.
- Ultra fast testing within 3 - 12 hours - Illinois's TurbopurgeTM technology ensures the fastest stabilisation time possible.
- Modular adapters can be installed in seconds, making this the most versatile package analyzer available.
- High level of stability and performance with a measuring range of 0.00004 - 2000cc/pack/day.
- Simple Windows based software control with an intuitive menu structure, allows each chamber to operate independently.

8000 Series - Oxygen Permeation Analyzers

8001 533 x 533 x 305 (mm) 28.1kg
2 stations for films or packages, precise humidity control, can switch between wet or dry samples within minutes.

8001L 533 x 533 x 305 (mm) 28.1kg
As 8001, with new coulometric oxygen sensor.

8002 533 x 533 x 305 (mm) 28.1kg
As 8001, but tests only dry or wet (assumed 100% RH).

8003 533 x 533 x 305 (mm) 28.1kg
As 8001, but tests dry only.

8200 533 x 533 x 305 (mm) 25.4kg
2 station for films or packages, dry test only

8501 356 x 356 x 279 (mm) 18.2kg
Reduced specification single station for film or package, dry test only.

8700 760 x 590 x 350 (mm) 65kg
11 stations for testing bottles.

8701 760 x 590 x 350 (mm) 65kg
11 stations for films or packages.

	8001	8001L	8002	8003	8200	8501	8700
OTR TEST RANGE							
Films							
0.005 - 432,000 cc/m2/day (0.0003 - 28,000 cc/100in2/day) No masking required		✓					
0.008 - 432,000 cc/m2/day (0.0005 - 28,000 cc/100in2/day) No masking required	✓		✓	✓			
0.04 - 100,000 cc/m2/day (0.0001 - 5,000 cc/100in2/day) No masking required					✓		✓
1 - 99,999 cc/m2/day (0.07 - 6,800 cc/100in2/day) No masking required						✓	
Package							
0.000025 - 2,000 cc/pack/day		✓					
0.00004 - 2,000 cc/pack/day	✓		✓	✓	✓		✓
Temperature range 41°F to 122°F (5°C to 50°C) 59°F to 104°F (15°C to 40°C)	✓	✓	✓	✓	ambient	✓	ambient
Controlled RH Testing Dry (0% RH) or generated RH (20% to 90%) Dry or assumed saturated 100% RH Dry only	✓	✓	✓	✓	✓	✓	✓
Expansion Expandable up to 5 Modules (Total 12 test cells) Expandable up to 5 Modules (Total 66 test cells)	✓	✓	✓	✓	✓		✓
Test Sample Size Films 50cm2 Films 100cm2 Packages	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓	✓ ✓
Calibration NIST referenced films and certified gases	✓	✓	✓	✓	✓	✓	✓
Automatic Temperature Control	✓	✓	✓	✓	ambient	✓	ambient
Power rating 100-240 VAC, 50/60 Hz, 840 VA (max) 100-240 VAC, 50/60 Hz, 150 VA (max)	✓	✓	✓	✓	✓	✓	✓