8501 Oxygen Permeation Analyzer

illinois instruments

Advanced Technologies in Oxygen Permeation Measurement

Applications

Produce Manufacturers | Packaging Manufacturers | Process Companies

Food Companies | Converters | Distributors | R&D

Features & Benefits

- Digital electronics
- OTR displayed as cc/m²/day or cc/100in²/day
- Automated test routine
- Scaleable analog outputs
- RS232 output
- Data logging capabilities
- Low cost system
- Accuracy traceable to current NAMAS/N.I.S.T. standards
- Sensor life indicator

Conforms to: ASTM D-3985 ISO 15105-2 DIN 53380 JIS K-7126 F2622-08

Your solution to laboratory quality analysis of packag

Illinois' 8501 offers a cost effective solution for those who need accurate, uncomplicated measurement of oxygen transmission rates (OTR) through permeable films.

The 8501 features state of the art electronics that allow the user to initialize test or calibrate with the touch of a button. Scaleable analog outputs allow the user flexibility when connecting to a chart recorder.

A standard RS232 port enables data logging capabilities. The unique LIFE parameter indicates when the internal oxygen sensor needs to be replaced.

Illinois' 8501 combines trace oxygen sensitivity, rugged dependability, and exceptional ease of use in a compact, single chamber, precision oxygen permeation analyzer.

Fast Analysis

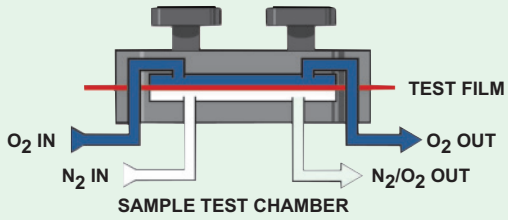
The proprietary sensor design of the 8501 allows for extremely fast, accurate results. In a head-to-head comparison between the 8501 and its competitors, the 8501 was proven to be up to 4 times faster.

With a purge time of only 30 minutes and test times as short as 20 minutes, the 8501 is a must for high volume production facilities.

With 2 button operation, the 8501 is simple to operate and requires little or no special operator training. The unit is easily calibrated to a certified NAMAS / N.I.S.T. traceable calibration gas. This makes the test results traceable to current NAMAS / N.I.S.T. standards.

Principle of Operation

The 8501 utilises our proprietary sensor to detect oxygen transmission rates through flat film barriers. Flat film samples are clamped in 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 film into the lower chamber are conveyed to the sensor by the carrier gas.



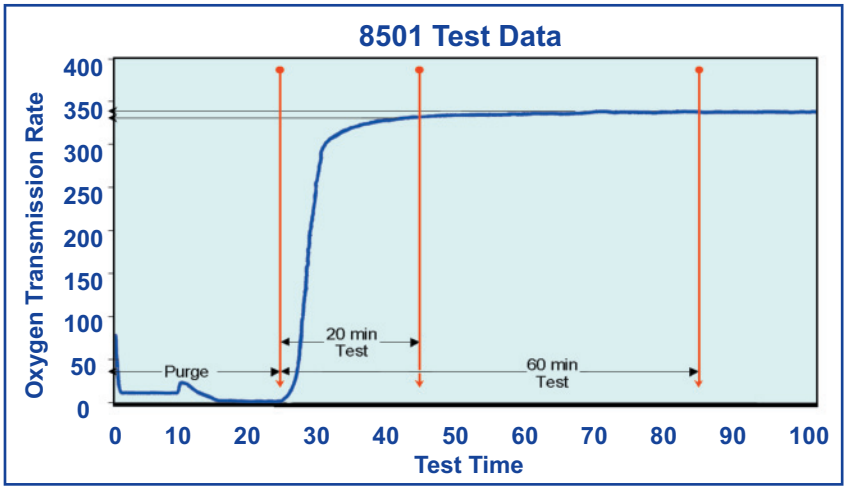
This allows a direct measurement of the oxygen without using complex extrapolations. Oxygen transmission rate of the test film is displayed as either cc/m^2/day or cc/100in^2/day.

ing film barriers in a simple to use benchtop system.

Proven Accuracy

The data plot below illustrates that a test film of 340cc/100in²/day and a test run of 60 minutes yields only about 8cc/100in²/day (2.3%) increase. This is compared to the 332cc/100in²/day sensed within the first 20 minutes.

Many applications will find that a shorter 20 minute test routine will consistently produce reliable and adequate results.

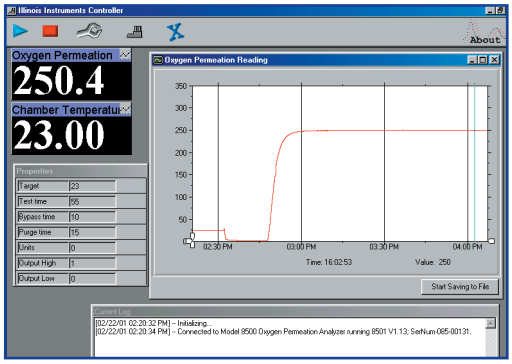


Easy to use software

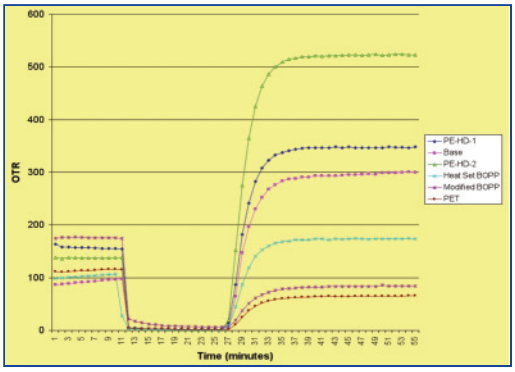
Although the 8501 is a stand-alone instrument, an RS232 port is provided for connection to a PC. Supplied software allows users a graphical interface for display, storage, and printout of the data.

The stored data can also be exported to a spreadsheet program such as Excel® or Lotus®. These programs allow you to graph and print the data or incorporate it into analysis reports for customers or management.

PC Supplied Software



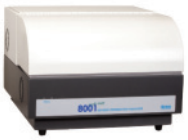
Typical Exported Excel® File



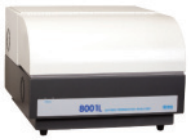
Illinois 8000 Series - Oxygen Permeation Analyzers

Illinois' range meets the requirement for the testing of any application.

8001
2 stations for films or packages, precise humidity control, can switch between wet or dry samples within minutes.



8001 e-net
As 8001, with new coulometric oxygen sensor and an integrated computer.



8001L
As 8001, with new coulometric oxygen sensor.

8002
As 8001, but tests only dry or wet (assumed 100% RH).

8003
As 8001, but tests dry only.

8200
2 station for films or packages.

8501
Reduced specification single station for film or package, dry test only.

8700
11 stations for films or packages.

Technical Specifications

	8001	8001 e-net	8001L	8002	8003	8200	8501	8700
OTR Test Range								
Films								
0.0003 - 28,000 cc/100in²/day (0.005 - 432,000 cc/m²/day) No masking required		✓	✓					
0.0005 - 28,000 cc/100in²/day (0.008 - 432,000 cc/m²/day) No masking required	✓			✓	✓			
0.0001 - 5,000 cc/100in²/day (0.04 - 100,000 cc/m²/day) No masking required						✓		✓
0.07 - 68,000 cc/100in²/day (1 - 99,999 cc/m²/day) No masking required							✓	
Package 0.00004 - 1,000 cc/pack/day	✓	✓	✓	✓	✓	✓		✓
Test Temperature Range								
41°F to 122°F (5°C to 50°C)	✓	✓	✓	✓	✓	ambient		ambient
59°F to 104°F (15°C to 40°C)							✓	
Controlled RH Testing								
Dry and 20% to 90% RH	✓	✓	✓					✓
Dry and Unknown Wet RH (Assumed saturated or 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 7.75 in²	✓	✓	✓	✓	✓			✓
Films 15.50 in²							✓	
Packages	✓	✓	✓	✓	✓	✓		
Calibration								
Films or NIST gas	✓	✓	✓	✓	✓	✓	✓	✓
Automatic Temperature Control	✓	✓	✓	✓	✓	ambient	✓	ambient

Illinois Instruments, Inc (U.S)
2401 Hiller Ridge Road
Johnsburg, Illinois 60051
U.S.A
Tel: +1 815 344 6212
Fax: +1 815 344 6332
E-mail: sales@illinoisinstruments.com
www.illinoisinstruments.com

Systech Instruments Ltd (UK)
17 Thame Park Business Centre,
Wenman Road,
Thame, Oxfordshire OX9 3XA
Tel: +44 (0)1844 216838
Fax: +44 (0)1844 217220
E-mail: advice@systech.co.uk
www.systechinstruments.com

Illinois Instruments (Thailand)
6th fl Nopnarong Bldg No7
Ladprao23, Jatujak, Bangkok 10900
Thailand
Tel: +66 (0)2938 0798
Fax: +66 (0)2938 1058
E-mail: mai@illinoisinstruments.com
www.illinoisinstruments.com

Systech Illinois (China)
Room 519, No.3 FuCheng Building
No. 900 Quyang Rd, Hongkou district,
Shanghai, China 200434
Tel: +86 21 65533022
Fax: +86 21 65539651
Email: info@systechillinois.cn
www.systechillinois.cn