

Modular systems for precision water vapor 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.
- Over 25 yrs experience of Proprietary Coulometric P₂O₅ sensor.
- Absolute moisture measurement - No calibration required.
- Widest measuring range in the market providing research grade flexibility.
- Flow, temperature and humidity control for ultimate responsiveness and repeatability.
- Intuitive Windows based software.
- No liquid coolants, catalysts or special gas mixtures required.

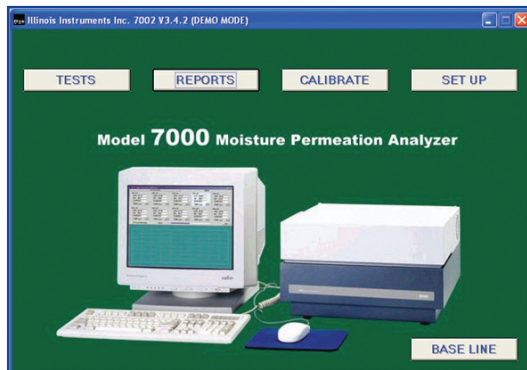
Conforms to: ASTM F-1249* ISO 15106-3 ISO 15105-2 DIN 53122-2

Software

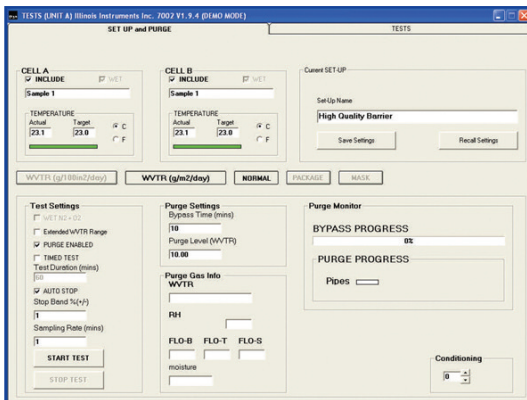
The intuitive Windows based software offers:

- Easy input and recall of operating parameters and test protocols.
- User-friendly data tracking, searches, sorts, storage and output capabilities.
- Graphical representation of measurement data in real time.
- Auto-stop feature stops test when samples have reached equilibrium or by user entered elapsed time value.
- Complete system diagnostics.

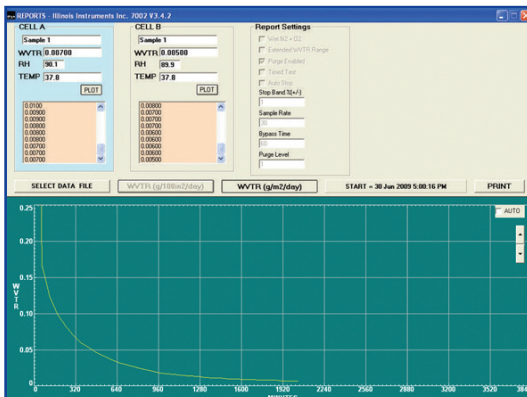
Start up



Set up



Actual data

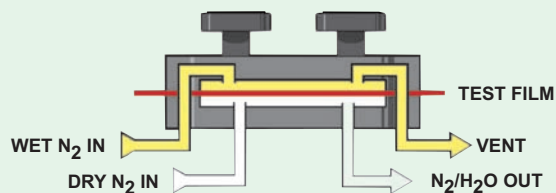


Principle of Operation

Utilising our proprietary sensor technology to detect water vapor transmission rates, samples are clamped or attached to a diffusion chamber. Wet nitrogen is then introduced into the upper half of the chamber while a moisture-free carrier gas flows through the lower half.

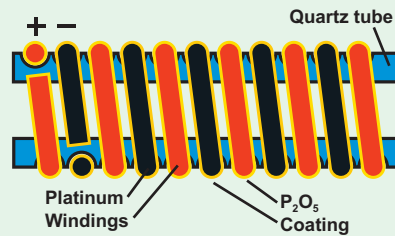
Molecules of water diffusing through the sample into the lower chamber are conveyed to the sensor by the carrier gas.

Sample Test Chamber



This allows a direct measurement of the water vapor without using complex extrapolations. Water vapor transmission rate of the test sample is displayed as either g/m²/day or g/100in²/day.

P₂O₅ Sensor



To achieve an absolute measure, the technology draws upon a fundamental principle of physics.

The phosphorous pentoxide (P₂O₅) moisture sensor consists of a dual platinum winding formed around a quartz tube.

The change in the resistance across the windings creates a change in the measured current. According to Faraday's Law this is directly proportional to the amount of moisture in the gas stream.

7000 Series - Water Vapor Permeation Analyzers

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



Systech Illinois' 7002 Water Vapor Transmission Analyzer delivers the same high performance as the 7001 but with an extended measurement range for more demanding applications.

Technical Specifications

Measurement Range

7001	Unmasked	0.002 to 10 g/m ² /day
	Masked	0.02 to 70 g/m ² /day
7002	Unmasked	0.002 to 70 g/m ² /day
	Masked	0.02 to 1000 g/m ² /day
Test Temperature Range		41°F to 122°F (5°C to 50°C)
Test RH Range		20 to 90% RH
Sample Size		50cm ² , adapters available for smaller samples

Operating Conditions

Operating Conditions	Standard laboratory environment
Power Requirements	100-240 VAC, 50/60Hz, 840 VA (max)
Supply Pressure	1.7 bar regulated
Gas Fittings	1/8 in. Swagelok (supplied)
Enclosure	Epoxy coated heavy gauge steel
Dimensions	20.98 x 20.98 x 12 (inches)
Weight	52 lbs

Options

Expansion Modules 7011 (Up to 5 modules can be linked)	Available for simultaneous WVTR analysis of up to 12 samples
Environmental Chambers	For finished package testing under special conditions

Systech Illinois have over 25 years experience of providing analysis solutions for a wide range of industries. From our manufacturing plants in the U.S and UK we produce gas analyzers for industrial process industries, headspace analyzers for monitoring gas flushing of food products, and our range of permeation analyzers.

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