

PERMATRAN-W® Model 398

Water Vapor Transmission Rate Test System

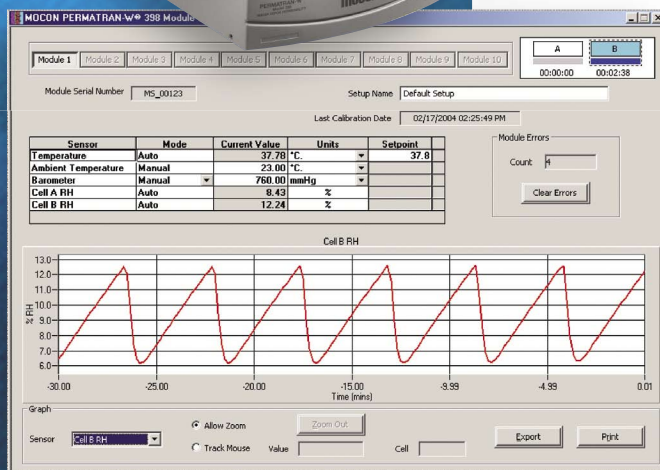
WVTR/MVTR



The new, easy to use, PERMATRAN-W Model 398 is the latest water vapor transmission rate system in a long line of quality systems available from MOCON, the World Leader in permeation technology. This simple, low maintenance system conforms to the new ASTM Standard E-398 and produces the accurate and reliable data the industry has come to expect only from MOCON.

The low-cost Model 398 is designed for medium to high barriers and allows for two films to be tested independently. Each test cell has its own sensor, assuring greater throughput with accurate results. Because the Model 398 provides for precise relative humidity testing, two films could be tested simultaneously at two different RH conditions!

◀ The new WinPerm, Windows based software, is simple and intuitive. Automated temperature and relative humidity control, as well as automatically determined equilibrium, all but eliminate operator error.



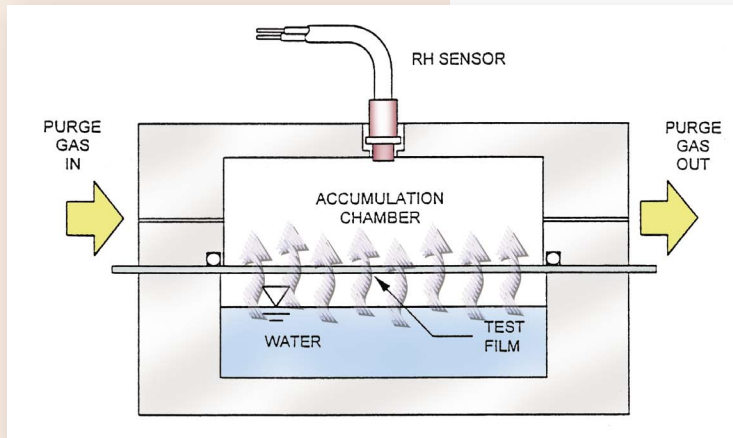
Software allows for a high of automation!
 ...automated equilibrium determination
 ...automated RH control
 ...automated temperature control

- Two, 50cm² independently operated test cells, each containing state-of-the-art sensor technology
- For testing medium to high barriers
- Broad range of automatic temperature and RH testing
- Modular systems allow for control of up to ten modules from a single computer
- Compatible with PERM-NET database and networking software.
- Set of three calibration films provided
- CE, UL, CSA Listed
- Ideal for polymer films and coated paper samples

Conforms to
 ASTM Standard E-398

PERMATRAN-W[®] Model 398

Water Vapor Transmission Rate Test System



Specifications

- WVTR test range:
Unmasked: 0.05 to 100 gm/m²•day
(0.003 to 6.45 gm/100 in²•day)
Masked: 0.5 to 1000 gm/m²•day
(0.03 to 64.5 gm/100 in²•day)
- Temperature range:
 - MA module: ambient +5C-50C
 - MS module: 5C-50C
- Relative humidity range:
50-90% (driving force differential)
- Two 50 cm² test cells
- Expandable up to 10 modules
(20 test cells)
- Set of 3 calibration films
- WinPerm Windows 2000 software
- CE, UL, CSA Listed

Theory of Operation - ASTM Standard E-398 Accumulation Method

The accumulation method of WVTR measurement is a proven approach that provides accurate measurements for medium/high barriers. The straightforward test method, shown here, involves a chamber containing a pool of water that is separated from an accumulation chamber by the sample under test. The relative humidity (RH) within the accumulation chamber fluctuates between a *low* setpoint and a *high* setpoint in response to the periodic introduction of a dry purge gas such as nitrogen.

When the test begins a valve is opened that allows a stream of dry purge gas to flow through the upper chamber, reducing the RH in the chamber until the low RH is reached. The valve is closed, and the humidity level within the chamber increases gradually in response to permeation through the film. When the high RH setpoint is reached, the valve opens once again and the cycle repeats.

The computer then records the number of seconds or minutes required for the RH within the chamber to reach the high setpoint. When the time between the low and high set points is stable over repeated cycles, the film is at equilibrium.

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