Water Vapor Transmission Rate Tester
WDDG

The inserted sample divides the permeation cell into an upper and a lower part. In the upper part of the permeation cell, a constant water vapor pressure (relative humidity) is set using saturated sulfuric acid solutions, a constant water vapor pressure (relative humidity) is set in the upper part of the permeation cell. The carrier gas (nitrogen 3.5) is pre-dried in the WDDG and then fed into the lower part of the permeation cell. lower part of the permeation cell. The carrier gas stream takes up the water vapor permeated by the sample permeated water vapor and passes it through a Keidel electrolysis cell. There the amount of water vapor is quantitatively recorded. The electronics register the current flow and display the the water vapor permeability directly in the corresponding unit (grams of water per square meter of sample). unit (grams of water per square meter of sample area and day).

The duration of a test depends on the water vapor permeability of the inserted sample. At the beginning of the test, the displayed value increases continuously. Via a compensation recorder you can follow this increase, and the measurement can be stopped when the stop the measurement when the final measured value is reached (no further increase). The temperature of the sample can be set via an external bath thermostat between -25°C and 80°C can be set.

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Technical data

Measuring range 0.005 g/(m² d) to 10 g/(m² d)
Resolution within the
measuring ranges
0.001 g/(m² d), 0.01 g/(m² d), 0.1g/(m² d)
Measuring ranges for recorder output
(100mV)
0.1 g/(m² d), 1 g/(m² d), 10g/(m² d)
Sample dimension circular, 115 mm diameter
Sample temperature range -25°C to 80°C (via external water bath thermostat)
Carrier gas nitrogen 3.5 (99.95% vol, dew point -72°C), dry - approx. 100

cm³/min
Gas flow of carrier gas electrolysis cell - 40 cm³/min to max 70 cm³/min for WDDG with
MEECCo electrolytic cell
Post-drying molecular sieve 0.4 mm, bead form 2 mm
Cell voltage 50 V
Dimension 50 x 35 74 cm
Weight 30 kg
Storage temperature 0°C - 50°C
Working temperature room temperature (23°C)
Relative humidity max. 80%, non-condensing
Electrical connection WDDG 230 V / 50 - 60Hz, power consumption approx. 50 W
Electrical connection recorder 230 V / 50 - 60Hz, power consumption approx. 50 W
Electrical connection bath thermostat 230 V / 50 - 60Hz, power consumption approx. 2300 W
Normative reference ISO 15106 - 3

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Accessories

Optional accessories

- Compensation recorder (with 100 mV measuring range) for graphical representation of the time measurement or external A/D-converter for data acquisition on
data acquisition on PC, for USB interface incl. OEM software
- Thermostat for controlling the measuring temperature between -25°C and 80°C
- Thickness gauge

Requirements for commissioning

- Mains connection
- Compressed air connection (1 - 3 bar N2 - quality 3.5)

Consumables and recommended spare parts

- High vacuum grease
- electrolytic cell
- molecular sieve
- Petroleum ether (cleaning agent for foils and the foil support)
- Nitrogen (N2 - quality 3.5)
- Glass sinter discs for humidification of permeation cell
- Filter discs for dry cells
- Sealing rings
- fuses