What does it measure?

The Tewameter® TM 300 is the worldwide most accepted measuring device for the assessment of the Trans-Epidermal WaterLoss (TEWL). This is the most important parameter for the evaluation of the water barrier function of the skin.

The Measuring Principle

The Tewameter® probe measures the density gradient of the water evaporation from the skin indirectly by the two pairs of sensors (temperature and relative humidity) inside the hollow cylinder. This is an open chamber measurement. A microprocessor analyses the values.

$$\frac{dm}{dt} = - D \bullet A \bullet \frac{dp}{dx}$$

A = surface [m²]
m = water transported [g]
t = time [h]
D = diffusion constant [= 0.0877 g/m(h(mmHg))]
p = vapour pressure of the atmosphere [mm Hg]
x = distance from skin surface to point of measurement [m]

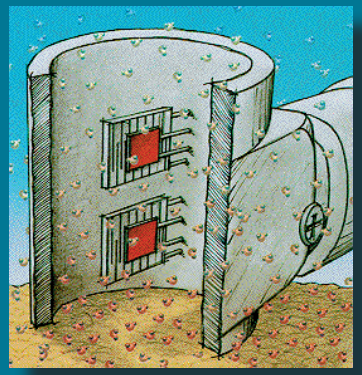
Fields of Application

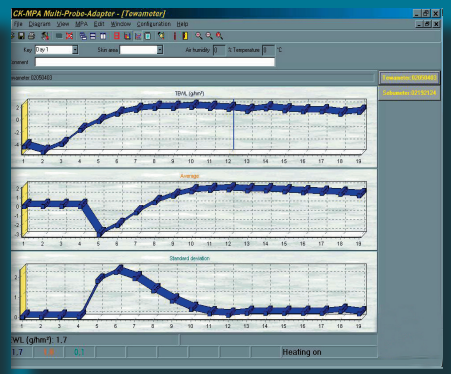
There is a wide field of applications for detecting even slight damages in the water barrier of the skin.

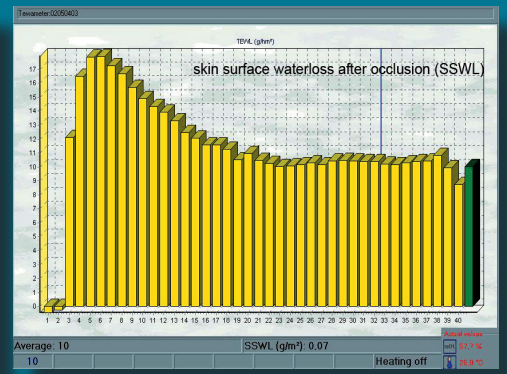
- It is indispensable in efficacy testing and claim support for cosmetics and pharmaceuticals.
- It is used for objective clinical diagnosis in dermatology and occupational medicine.
- Monitoring of newborn and detecting skin damage are important applications.
- It can be used for in vitro testing of permeability.
- Also for the food industry the measurement is of interest.
- Many international scientific studies demonstrate its benefits in all dermatological and cosmetological application fields.

Advantages

- The open chamber measurement is the only method to assess the TEWL continuously, which is necessary for most applications without influencing the skin surface. Numerous studies available.
- A stable measurement is achieved quickly, the next measurement can be done without waiting time.
- The small size of the probe head minimizes the influence of air turbulence inside the probe.
- Its low weight has no influence on the skin structure and ensures easy handling.
- Offset of the probe sensor values by the user possible.
- Check calibration can easily be done by a small chamber at any time.
- Available for C+K MPA-System, as stand-alone device and wireless probe.







Technical Data

Dim.: Hollow cylinder: 2 cm, ∅ 1 cm, Probe: 15.3 cm, Weight: 90 g, Resolution: Humidity: ± 0.01 % RH, Temp.: ± 0.01 °C, Accuracy within 10° C to 40° C and for TEWL-values lower than 70 g/hm²:
rel. humidity (RH): ± 1.5 % RH in the range of 30 % RH to 90 % RH; ± 2.5 % RH in the range of 90 % RH to 100 % RH; ± 2.5 % RH in the range of 0 % RH to 30 % RH
Waterloss: ± 0.5 g/hm² for RH ≥ 30 %; ± 1.0 g/hm² for RH ≤ 30 % , Temperature: ± 0.5 °C
Technical changes may be made without prior notice.

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Closed Chamber Measurement

The Tewameter TM 300 is a unique device with the possibility to measure with an open chamber as well as with a closed chamber by a special adapter cap. This is very useful for measurement under suboptimal environmental conditions like in field tests.

Probe Heater PR 100

To measure the TEWL precisely in a short time, the probe needs to be heated to the same temperature level as the skin. The Probe Heater PR100 warms the probe up to the temperature range of 28-32°C.

Special Rings & Caps

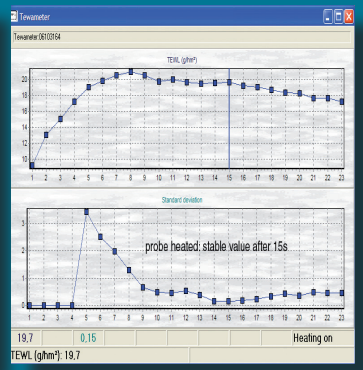
- Sterilizable rings for the Tewameter® -probe head allow measurement on special surfaces, e.g. wounds
- Special caps with smaller opening are available for different applications e.g. measurement on small animals

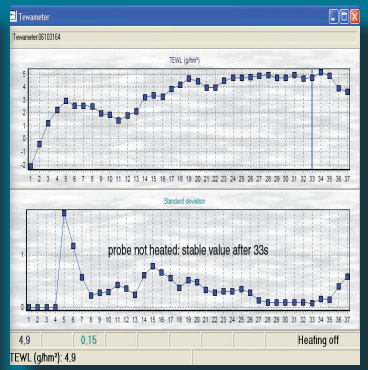
Diffusion Cell Fixture

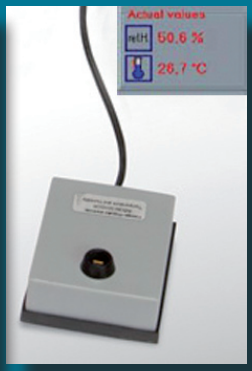
- A head to fix the Tewameter® -probe on diffusion cells (∅ 15 mm) for the wide field of in vitro measurements and diffusion tests is available.

Ambient Condition Sensor RTH 100

- The room condition sensor measures room temperature and relative humidity. These values are stored in the software together with the measurement results.
- Important for measurement of TEWL as well as for many other parameters. TEWL, moisture, sebum, skin colour, gloss etc. will largely be influenced by transpiration.
- Indispensable for subsequent evaluation and comparison of measurement data
- Available for the C+K MPA-System and for the stand-alone devices.







Technical Data

Probe Heater PR 100: Power supply: external, 12 VDC, 3.5 A max. Dimensions: 10 x 11 x 10.5 cm Weight: 470 g
Operating conditions: T: 10-40° C r.H.: 30-70 % RH
Ambient Condition Sensor RTH 100: Dimensions: 4.7 x 1,9 x 5 cm Weight: 50 g Accuracy: r.H. ± 2% , T ± 0.9°C
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