Tewameter® TM 300 - Skin Barrier Function And Transepidermal Waterloss

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 **barrier function** of the skin.

The Measuring Principle

The Tewameter® probe measures the **gradient of the water evaporation** from the skin indirectly by two pairs of sensors (temperature and relative humidity) inside the hollow cylinder. This is an **open chamber measurement**. The water evaporation rate is calculated:

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

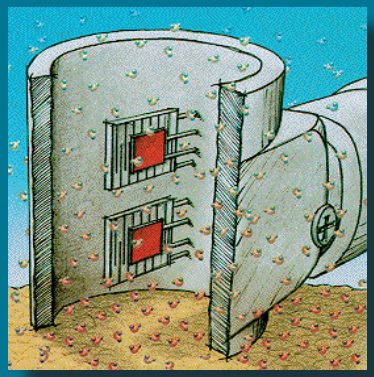
A = surface [m²]
m = water transported [g]
t = time [h]
D = diffusion constant [= 0.0877 g/m(h(mmHg))]
p = vapour pressure of the atmosphere [mm Hg]
x = distance from skin surface to point of measurement [m]

Fields of Application

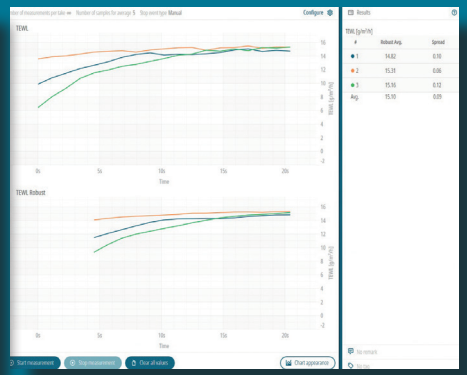
- Indispensable in **formulation, efficacy testing and claim support** for cosmetics and pharmaceuticals, regarding improvement of the skin barrier function.
- **Safety tests** for products as even slight deficiencies in the skin barrier can be detected.
- Dermatological **basic research**.
- **Sweat studies** (anti-perspirant efficacy testing).
- **Educative measurement** in occupational health to alert people for the necessity of using skin protection products.
- **Veterinary** medicine and zoology.
- Also for the **textile, food, packaging and paper/ tissue** industry, the measurement is of interest.

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.
- Easy **check calibration** with a small chamber.
- **Offset of probe** by the user possible for compensation of “aging effects“ of the sensor.
- Special calculations i.e. Skin Surface Water Loss (the skin‘s water holding capacity after occlusion).
- Available for C+K **MPA-systems**, as stand-alone device (MDD) and wireless probe (operation with MPA Wireless software).







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,
Measurement uncertainty: 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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