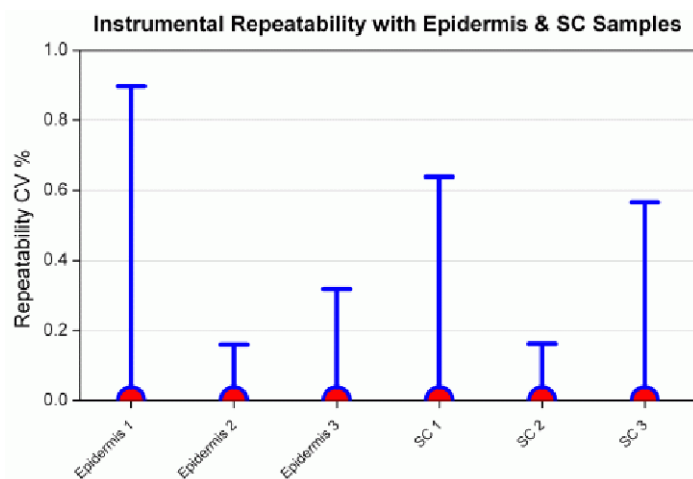


Membrane Integrity Testing



- Fast
- Best Sensitivity
- Best Accuracy
- Best Repeatability
- Best Reproducibility
- Push-fit couplings
- Finds imperfect seals
- Removes donor-side moisture

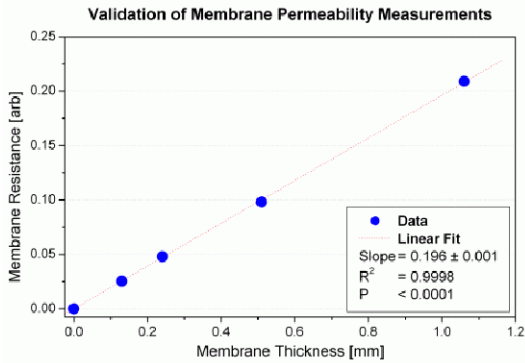


More than just closed !!

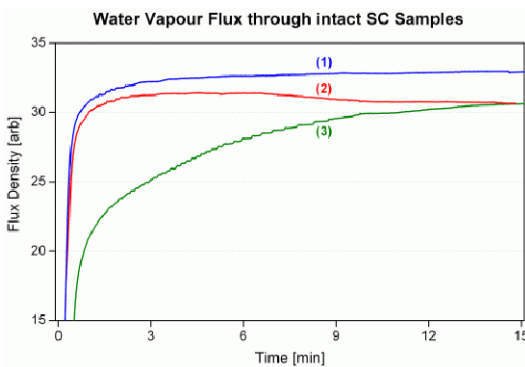
Membrane Integrity Testing

OECD Guideline 428 stipulates barrier integrity testing before permeation experiments are carried out. TEWL, electrical resistance and tritiated water procedures are recognised for such tests. TEWL tests are often seen as ineffective and cumbersome. No more.

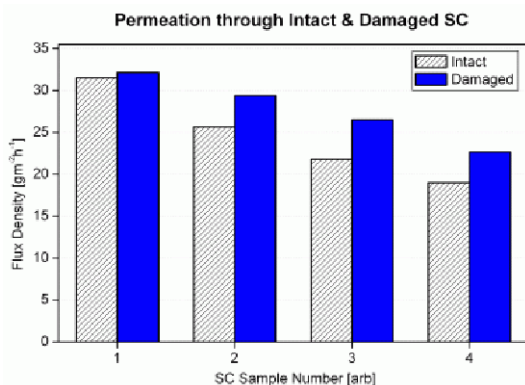
The AquaFlux with its patented condenser-chamber measurement technique offers a new approach. Purpose-designed couplings seal reliably to donor chambers without requiring contact with the membrane. The closed measurement chamber ensures maximum sensitivity, irrespective of ambient air movements. The controlled microclimate humidity provides reproducible measurement conditions, where any donor-side moisture dries off rapidly during the measurement, irrespective of ambient humidity.



The method was validated using artificial Sil-Tec membranes, correlating membrane thickness with diffusion resistance (=1/permeability, calculated from the measured water vapour flux density). A correlation plot is shown on the left, where $R^2 = 0.9998$, ie almost perfect correlation. These data also give an idea of the sensitivity and repeatability of the AquaFlux.



Typical water vapour flux curves measured with intact SC samples are shown on the left. **Curve (1)** shows normal settling to a steady flux. **Curve (2)** shows the effect of donor-side moisture, which needs to evaporate before the flux settles to a steady level. This prolongs the test, but the result is valid. **Curve (3)** shows an anomalously slow rise to a steady flux, caused by poor contact between the receptor water and the lower surface of the membrane. The ability to inspect the flux time-series curves in this way is crucial for validating the tests.



Typical results of integrity tests on SC samples from different donors, before and after inflicting damage by means of a single puncture of 50-100µm diameter, are presented on the left. The effect of membrane damage is clearly visible in SC samples 2-4, where the intact membrane permeability is low. Sample 1 has a higher intact permeability and shows little effect from the additional damage. The instrumental repeatability for such measurements is typically less than 1% CV, as illustrated on the front page of this brochure.

Apart from its unequalled performance, the AquaFlux is also well supported and easy to use. Its sophisticated software provides flexible control, real-time displays and detailed Excel-compatible records of the measurements. The ActiveX technology enables the software to be integrated with other software such as company-wide databases and information management systems.

Biox Systems Ltd
Technopark Building
90 London Road
London SE1 6LN, UK



Tel/Fax:
e-mail:
web:

+44 (0)845 8622129
sales@biox.biz
www.biox.biz