

What does it measure?

The Cutometer® MPA 580 is worldwide acknowledged as the standard device to measure elasticity and other biomechanical parameters of the skin. The Multiprobe Adaptor function allows to connect further probes additionally to the two Cutometer® probes.

The Measuring Principle

The measurement is based on suction. Negative pressure is created in the device drawing the skin into the aperture of the probe. Inside the probe the penetration depth is determined by a non-contact optical measuring system consisting of a light source and a light receptor, as well as two prisms facing each other, which project the light from transmitter to receptor. The light intensity varies due to the penetration depth of the skin.

The resistance of the skin to be sucked up by negative pressure (firmness) and its ability to return into its original position (elasticity) are displayed as curves.

Fields of Application

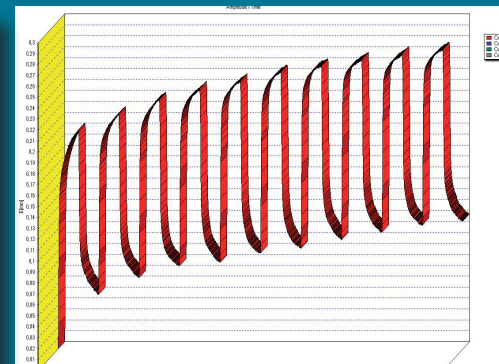
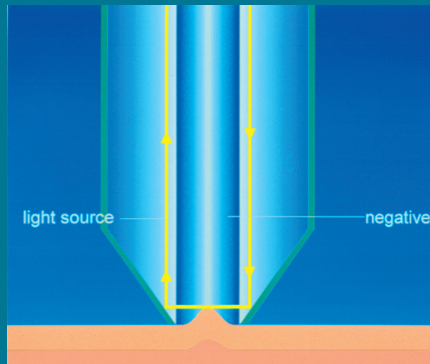
The measurement with the Cutometer® is used as standard in dermatology and cosmetology

- It is indispensable for formulation, efficacy testing and claim support for all kinds of cosmetic products (especially anti-ageing products, firmness enhancing products).
- It is used for research and clinical diagnosis, e.g. measurement on scars. Also special applications like in gynaecology are possible.
- Other materials like food can also be assessed.

Advantages

- The modern, high quality electronics of the probe allow a very quick measurement.

- Several probe aperture sizes for various skin sites and study requirements (e.g. different skin thickness, scars) are available.
- Two probes with different aperture sizes can be connected at the same time.
- A spring in the measuring head provides constant pressure on the skin.
- The low weight of the probe ensures easy handling. A multitude of elasticity related parameters can be calculated from the curves.
- The settings in the programme are very flexible and can be selected by the user according to different applications.
- All data of the curves can be transferred to spreadsheets (Microsoft Excel®) for further individual evaluation (up to four curves per sheet).
- Available solely as C+K MPA -System.



Technical Data

Dimensions: Device: 39 x 22.5 x 7.6 cm, Probe: 10.7 cm x Ø 2.4 cm, Aperture: Ø 2 mm standard, (4, 6 or 8 mm on request), Weight: Device: 3.9 kg, Probe: 165 g incl. air tube, Power supply: ext. 100-240 VAC, 47-63 Hz, DC 12V/4A

Units: µm penetration depth into the probe opening, expressed as curves

Technical changes may be made without prior notice.

Courage+Khazaka electronic GmbH since 1986
Mathias-Brüggen-Str. 91 · 50829 Köln · GERMANY

phone +49 (0)221. 9 56 49 90 · fax +49 (0)221. 9 56 49 91
info@courage-khazaka.de · www.courage-khazaka.de



Software & Parameters

The software of the Cutometer® dual MPA 580 allows to calculate a lot of interesting parameters. Here a short overview:

R-Parameters

- R0: This parameter represents the passive behaviour of the skin to force.
- R1: The ability of the skin to return to its original state.
- R2: Gross elasticity, the closer the value is to 1 (100 %) the more elastic the curve, very important parameter.
- R3: Maximum amplitude of the last suction curve after repeated suction. „Tiring effects“ of the skin are visible, as the amplitude increases with each new suction.
- R4: Last minimum amplitude compared to the first curve, „tiring effects“ of the skin are visible, as the ability of reformation decreases with each new suction.
- R5: Net elasticity, the higher the value, the more elastic is the skin.

- R6: Portion of the visco-elasticity on the elastic part of the curve. The smaller the value the higher the elasticity.
- R7: Portion of the elasticity compared to the complete curve, the closer the value is to 1 (100 %), the more elastic the skin.
- R8: Skin recovery, the closer the value is to R0, the better is the ability of the skin to return to its original state.
- R9: Represents tiring effects of the skin after repeated suction and release of the skin. The smaller R9, the smaller the tiring effects.

F-Parameters

These area parameters can only be taken in mode 1 and some will need 10 repetitions.

- F0, F1: These areas are deducted from the total area. A completely elastic material will show no area at all, the closer the value to 0,

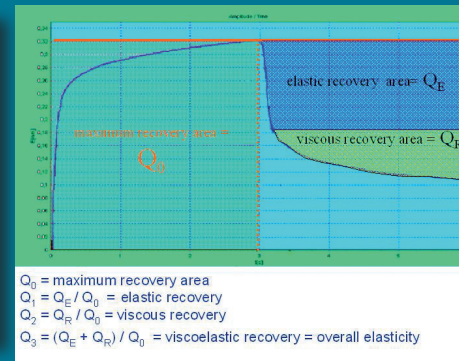
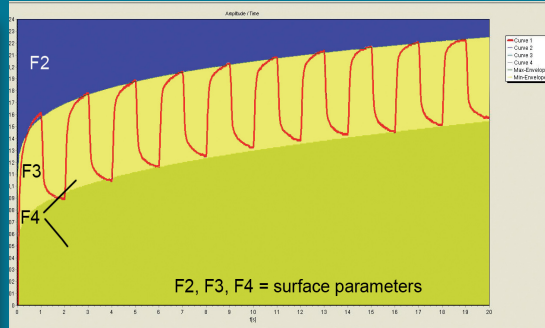
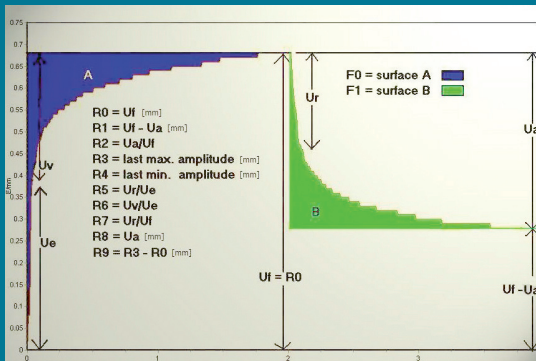
the more elastic the material.

- F2: Area above the upper envelope-curve showing tiring effects after repeated suction.
- F3: Area within the envelope curves.
- F4: Area under the upper envelope-curve. The smaller F4 the more the skin resists to the suction (skin firmness).

Q-Parameters

A set of parameters developed by the scientist Di Qu* has recently been added, showing interesting correlations between skin age and the elastic and viscous recovery of the curves.

- Q0: Maximum recovery area, will decrease with increased firmness of the skin.
- Q1: Elastic recovery, will increase with more elasticity of the skin.
- Q2: Viscous recovery
- Q3: Viscoelastic recovery (overall elasticity), will increase with more elasticity of the skin.



Mode 1:	On-Time:	2,0 s	Off-Time:	2,0 s	Pressure:	400 mbar	Repetition:	10	Total-Time:	40
Results	Curve 1	Curve 2	Curve 3	Curve 4						
R0	0,3950	0,2740	0,3240	0,3000						
R1	0,1710	0,0840	0,1040	0,0720						
R2	0,4896	0,6934	0,6790	0,7600						
R3	0,4350	0,3840	0,4280	0,3820						
R4	0,2900	0,2050	0,2610	0,1620						
R5	0,4365	0,6894	0,4752	0,5920						
R6	0,8508	1,0758	0,6040	0,5973						
R7	0,2358	0,3321	0,2963	0,3667						
R8	0,1640	0,1900	0,2200	0,2280						
R9	0,1000	0,1100	0,1040	0,0820						
F0	12,8143	10,1665	12,0983	9,7350						
F1	0,0328	0,0457	0,0503	0,0460						
F2	1,5995	1,8054	1,7144	1,3052						
F3	6,4911	7,5593	7,1309	9,1333						
F4	15,3003	13,6896	15,5419	14,0337						
Q0	67,0000	54,8000	64,8000	60,0000						
Q1	0,4381	0,6066	0,5980	0,6796						
Q2	0,3282	0,4371	0,4448	0,5162						

Technical Data

Computer: Windows® Vista, 7, or 8, performance must meet system requirements, USB 2.0

Technical changes may be made without prior notice.

*Di Qu, Senior Research Scientist, R&D Skin Care, Amway Corporation, Ada, Michigan, USA

Courage+Khazaka electronic GmbH since 1986
 Mathias-Brüggen-Str. 91 · 50829 Köln · GERMANY
 phone +49 (0)221. 9 56 49 90 · fax +49 (0)221. 9 56 49 91
 info@courage-khazaka.de · www.courage-khazaka.de

