



STEPS



1. CUTOMETER IN USE

Skin Elasticity

Measurement of Skin Elasticity using the Cutometer

Supportable Claims

- Improves Skin Elasticity
- Skin aging effects
- Sagging Skin Reduction
- Firm and Tighten Skin

Principle

The objective is to instrumentally measure the elasticity of the skin, using the Cutometer. The instrument applies gentle suction to a very small sample of the skin surface and then releases the skin, allowing it to recover.

Steps of the Test

A target area of skin is identified. Typically, this is the back of the hand, the arm, the cheek or the upper leg.

The area is gently washed. The probe of the Cutometer is placed against the skin surface and the vacuum is applied. The amount of skin and the speed at which it travels is recorded.

The vacuum is turned off and the measurements are continued as the skin recovers.

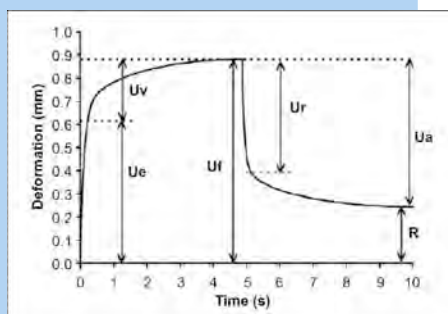
After treatment with the test formulation, the measurements are repeated at predetermined intervals in order to establish the improvement from product usage.

Reporting

A number of skin properties can be calculated from the measurement. Most are based on the ratio between two behaviours of the skin. These are listed below...

References

1. Bettinger, J. et al **Comparison of different non-invasive test methods with respect to the effect of different moisturizers on skin** *Skin Research and Technology* 1999, 5, 22-27
2. Hyo Sub Ryu, et al **Influence of age and regional differences on skin elasticity as measured by the Cutometer®** *Skin Research and Technology* Vol 14 No 3 2008



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2. CUTOMETER REPORT

Instrumental Readings - Strain vs Time - Cutometer with constant suction

Para	Description	Expected
r0	Uf Maximum Amplitude	Total deformation/Extensibility
r1	Ue Minimum Amplitude	
r2	Ua/Uf gross Elasticity recovery/deformation	
r3	Last Max Amplitude	
r4	Last Min Amplitude	
r5	Ur/Ue net Elasticity characterisation of Elasticity	decreases with aging
r6	Uv/Ue Change in Visco-elastic Portion relates to extension	increases with aging
r7	Ur/Uf Recovery after deformation elastic recovery	
r8	Uv/Ue Visco Part	



Expression of Results from Elasticity Testing by Cutometer

Instrumental Readings - Strain vis Time I.e. Mode 1 of the Cutometer with constant suction

Descriptions from C & K Manual	Parameter	Description	Significance/Claim	Prediction/Expected
	r0	Uf Maximum Amplitude		Total deformation/Extensibility
	r1	Minimum Amplitude		
	r2	Ua/Uf gross Elasticity	recovery/deformation	
	r3	Last Max Amplitude		
	r4	Last Min Amplitude		
	r5	Ur/Ue net Elasticity	characterisation of Elasticity	decreases with aging
	r6	Uv/Ue Change in Visco-elastic Portion	relates to extension only	increases with aging
	r7	Ur/Uf Recovery after deformation	elastic recovery	
	r8	Visco Part		

Reference	Parameter	Description
Esner -Mechanical Suction Method 1990	r6	Uv/Ue ratio between viscous deformation and elastic deformation
	r7	Ur/Uf ratio between immediate recovery and total deformation
Cua, Maibach Elastic Properties of Human Skin 1990	r6	Uv/Ue ratio between viscoelastic properties and immediate distension
	r7	Ur/Uf ability to regain initial position after recovery
Dobrev, In Vivo Non-invasive Study 1995	r2	Ua/Uf gross
	r5	Ur/Ue net
	r6	Uv/Ue viscoelastic/elastic ratio
	r7	Ur/Uf biological elasticity
Pierard, Influence of the Test Area on the Mecha.. 1995	r0	Uf Extensibility
	r2	Ua/Uf Elasticity
Teglia, Influence of Cosmetic Treatments ... 1996	r6	Uv/Ue
	r7	Ur/Uf biological elasticity
Loden, Barrier Recovery and influence of irritant... 1997	Ue	Immediate Distension
	r0	Uf Final Distension
	Ur	Immediate Retraction
	r6	Uv/Ue