

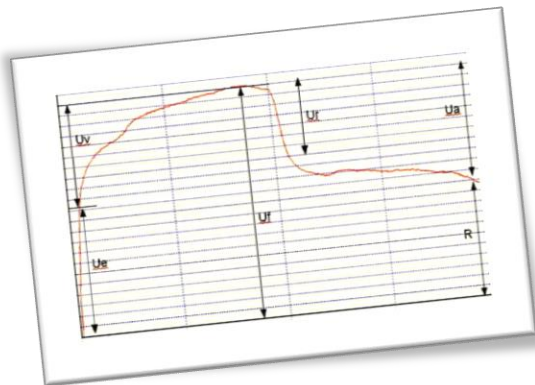
## PRINCIPLE - PARAMETERS AND INTERPRETATIONS

### Principle :

The principle of SkinFlex is quite simple and very close to the DynaSkin previously developed by the ORION Concept company and marketed by EOTECH.

The principle is to create a deformation by pressure on the skin, simulating the clinician / dermatologist's gesture to evaluate the mechanics of the "skin material" and the subcutaneous tissues. This deformation is mechanically of the same nature as that obtained by suction with a cutometer. Two things, however, differ:

- ✓ The geometry of the measurement with a depression of about 10 mm in diameter (2mm for the cutometer) and therefore more macroscopic. It is thus close to the clinic and palpation by the clinician.
- ✓ The creation of a pressure (air flow) onto the skin and not a suction that allows to study more precisely the "firmness". In material mechanics, the SkinFlex is an indenter.



The air flow that creates this depression as an invisible "finger" that creates pressure on the tissues.

The use of a high rate camera ( 300/350) frames per second allows to capture all the deformation as well as the relaxation phase as soon as the air flow stops (relaxation of the order of 100-200 ms depending on the skins).

### Parameters :

Several raw parameters are quantified:

- **The maximum depth of depression (Uf equivalent)**
- **The diameter, surface and volume of this depression**
- **The residual depth 80 ms (in average) after the air flow stop corresponding to the level of the residual relaxation (R)**

From these raw parameters, suitable parameters describing the effect of dermocosmetic products can be calculated as follow :

- **Firmness:** volume of the depression (the bigger it is, the less it is firm or "hard")
- **Tension:** surface / max. depth ratio

**Tonicity:** value of the residual depth at 80 ms after the stop of the airflow. This tonicity gives an information about the capability to the skin to recover its initial position. This parameter is closely related to the ageing of the skin.

*(See the associated publication for the validation : Skin flex®, a new standalone device for the measurement of the mechanical properties of the skin and subcutaneous tissues without contact. Jean Christophe Pittet\*, Agnès Lavoix\*\*, Elise Huguet\*\*\*. \*ORION Concept – 113 rue des Bordiers – 37100 Tours, France, \*\* DERMATEC - Centre Hospitalier Lyon Sud - 165 ch du Grand Revoyet - 69495 Pierre-Bénite, France, \*\*\* ALES GROUP - 89 rue Salvador Allende - 95870 Bezons, France, COMET Congress 2018, 2019)*