

## All in the eyes!



Eyes are the first feature we notice about someone. It is now commonly admitted that they are **the main seat of our emotions**. Looking at the eyes alone is most often sufficient to understand simple or even complex mental states and doing so they greatly facilitate the understanding of our interlocutor.

With time, the fragility of the skin around the eye area and its permanent motion favor the formation of wrinkles at the corner and below the eyes. These lines change how our expression is read, in particular under-eye wrinkles and the tear trough (or valley of tears) which give the face an impression of tiredness and sadness.

Gattefossé has recently launched a **natural active**, [Gatuline® Link n Lift](#), that specifically offers a solution to restore the emotional language of the eyes.

Gatuline® Link n Lift - derived from horse chestnut flower and obtained using the innovative **NaDES technology** (Natural Deep Eutectic Solvents) - is particularly rich in three flavonoids (astragalin, nicotiflorin and isoquercitrin) with strong biological properties.

This new active acts upon the major components involved in epidermis-dermis cohesion and communication, and **reinforces Dermal-Epidermal Junction (DEJ)** integrity, particularly affected by ageing of the eye area. In the dermis, fibroblast mobility is activated, boosting skin restructuring.

Gatuline® Link n Lift was **tested *in vivo* in a double blind study** conducted in France (in collaboration with IEC\*) *versus* placebo on a panel of 32 Caucasian women during 56 days. The activity of Gatuline® Link n Lift on all eye contour wrinkles (tear trough, crow's feet and the sub-ocular area) was measured using clinical scoring and various instrumental techniques.

The first results are visible from only two weeks: under-eye and crow's feet wrinkles are significantly reduced; the valley of tears is visibly smoothed. This active enables the face to regain a rested expression of authentic positive emotions.

Gattefossé has partnered with [Newton Technologies](#) to achieve **realistic 3D prints** that show the efficacy of this active on crow's feet and under-eye wrinkles.

In order to demonstrate the effectiveness of this active ingredient on the skin, Newton Technologies has implemented an innovative 3D processing method.

\*IEC: Institut d'Expertise Clinique

Innovative 3D models were created based on **fringe projection *in vivo* acquisitions** for the under-eye and the crow's feet areas of the half-face treated with cream containing 2% of Gatuline® Link n Lift of the volunteer 02.

The individual data of this volunteer, the quality of the acquisitions in fringe projection, the morphology of this volunteer and the visibility of the anti-wrinkle effects on the 2 studied areas are all the elements that led us to select this volunteer for the creation of 3D prints.

The first step of this complex protocol consists in the ***in vivo* digitization of the crow's feet and under-eye area surface at different time points**, with a fringe projection acquisition system (Dermatop 50). Then, 3D surfaces are extracted based on 3D coordinates of each digitalized points and flatten to get rid of the global curves relative to the morphology of the subject.

An extrusion process based on a specific 3D data processing algorithm, developed by Newton Technologies, allows generating volumes from 3D surfaces for the 2 considered time points (D0 and D28 or D0 and D56). Those 2 volumes are then aligned with a computer based 3D editing tool and 3D labels are added with the name of the volunteer and the 2 time points.

Final 3D model files with a magnification factor of about 3.6 compared to the real skin surface are then generated for printing based on a deposit thin layers of polyamide powder which are heated successively by a laser. The thickness of each layer is approximately 100µm.

At the end of the printing process, the accumulated powder which cannot be removed by hand is removed with pressurized air. A thin liquid primer is applied to the entire surface to be painted to ensure the homogeneity of the color throughout the surface. The printed volume is then painted with a specific paint formulation made from the counter-typing of a defined skin tone to **obtain a final result close to real skin in terms of color and texture.**

This new way of illustrating the results of a cosmetic active makes it easier to understand what can be expected upon use.

Gatuline® Link n Lift was awarded Silver for the Best Active Ingredient at in-cosmetics Global on April 5th, 2017.



## Acquisitions of the 3D prints of the volunteer 02

*Under-eye area*



*Crow's feet area*



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