



*Portulaca pilosa* aka *Kiss-me-quick*,  
and *Pal-KMO<sub>2</sub>K*

**Function:**  
Lip plumper.

**Definition:**  
Association of *Portulaca pilosa* extract and the dioxygenated natural peptide *Pal-KMO<sub>2</sub>K* in a liposoluble excipient.

**Properties:**  
Improvement of the internal and superficial lip texture with a visible impact on the lip shape: increase of the lip volume, hydration and softness. Anti-ageing and anti-sagging effect.

**Characteristics:**  
Mimics hyaluronic acid injection by doubling its synthesis level but also strongly stimulates the synthesis of matrix and dermal-epidermal junction molecules.

**Points of interest:**  
*Pal-KMO<sub>2</sub>K* is derived from the tripeptide *KMK* naturally found in collagen 6 and laminins.

**INCI Name:**  
(Check PCPC on-line dictionary for latest INCI name)  
Cetearyl Ethylhexanoate – Sorbitan Isostearate – *Portulaca Pilosa* Extract – Sucrose Cocoate – Palmitoyl Tripeptide-38

**Applications:**  
Lip care and make-up.

**Formulation:**  
Liposoluble, easy to incorporate into make-up formulations.

**Recommended use level:**  
1%



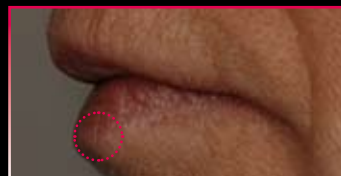
Lip *architexture* technology with **cushion** effect

before

after 1 month



**+101%** increase  
Hyaluronic acid



Lip shape improvement  
Surface **+8.6%** up to +61%  
Volume **+15.1%** up to +82%

## In vivo tests

29 female panellists. Twice daily application of a balm containing 1% Volulip™ for a month. Measurements by echography, FOITS Moisture-MeterD and Aeroflexmeter®. Photography and image analysis.

### ● LIP SHAPE

**SOFTNESS** Softness is evaluated by measurement of roughness on the flattest area of the lower lip.

- Softness ..... **+10.5%**, p<0.01
- Volunteers with improvement ..... **83%**



**CURVATURE** The radius of curvature is determined by drawing a circle in the profile line in the middle of the lips.

- Curvature ..... **+9.2%**, p<0.05
- Volunteers with improvement ..... **69%**

### ● LIP YOUTH (Aeroflexmeter® and Echography, n=21)

Echography study performed in collaboration with Paris Descartes University with a mini echographic probe originally developed and used to explore gum pathology.

- Firmness (Uf) ..... **+13.3%**, p<0.05
- Absorption (A25) ..... **+14.9%**, p<0.06
- Tissue density ..... **+8.5%**, p<0.01

**SURFACE** The surface of the central area of the lower lip is measured by a software.

- Surface ..... **+8.6%**, p<0.01
- Volunteers with improvement ..... **97%**
- 9 volunteers with very fine lips ..... **+19.6%**, p<0.02

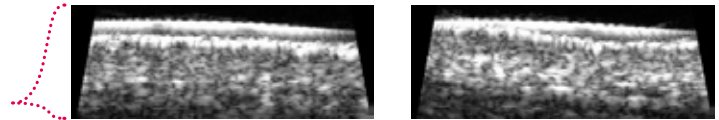


**VOLUME** Lips are assimilated to a torus in order to measure the volume on a determined length.

- Volume ..... **+15.1%**, p<0.06
- Volunteers with improvement ..... **69%**

### ● LIP HYDRATION 20 hours after the last application

- Moisture ..... **+50.6%**, p<<0.01
- Volunteers with improvement ..... **97%**



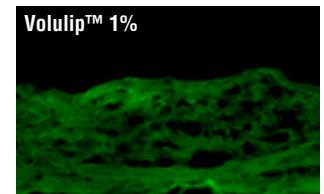
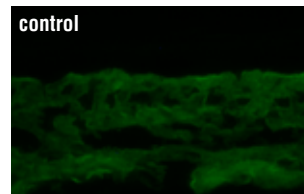
**Volulip™ provides a visible improvement in lip shape (softness, radius of curvature, surface and volume), hydration and youth (anti-sagging and cushion effect) for at least 69% volunteers.**

## In vitro tests

### ● Stimulation of matrix molecules synthesis – synergetic effect

	Pal-KMO <sub>2</sub> K	VOLULIP™ 1%
Collagen 1	<b>+105%*</b>	<b>+133%*</b>
Collagen 3	<b>+104%*</b>	<b>+223%*</b>
Fibronectin	<b>+59%*</b>	<b>+73%*</b>
HSP47	–	<b>+135%*</b>

\* significance: p<0.01/control

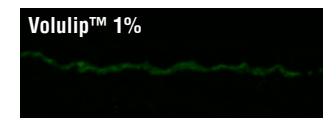
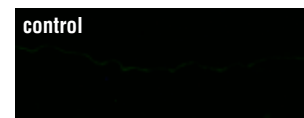


Variation of Collagen 1 synthesis in the dermis.

### ● Stimulation of dermal-epidermal junction molecules synthesis

	Pal-KMO <sub>2</sub> K	VOLULIP™ 1%
Collagen 4	<b>+42%*</b>	<b>+84%*</b>
Laminin 5	–	<b>+62%*</b>

\* significance: p<0.01/control

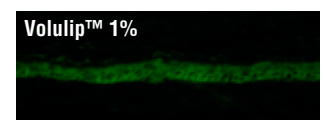
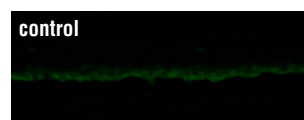


Variation of Laminin 5 synthesis in the dermal-epidermal junction.

### ● Stimulation of moisture molecules synthesis

	VOLULIP™ 1%
Hyaluronic acid	<b>+101%*</b>
Aquaporin 3	<b>+31%*</b>

\* significance: p<0.01/control



Variation of Aquaporin 3 quantity

**These studies demonstrate the synergistic efficacy of Pal-KMO<sub>2</sub>K associated to *Portulaca Pilosa*. By improving the matrix and the dermal-epidermal junction molecule synthesis, Volulip™ provides quantitative and qualitative benefits on lip structure and “architexture”. Lip volume is also enhanced by the stimulation of hyaluronic acid synthesis which has strong water holding capacity ; water homeostasis and flow are regulated. Volulip™ mimics hyaluronic acid injection by doubling its synthesis level.**