

HYDROXYPROLISILANE®



SKIN RESTRUCTURATION
BODY FIRING
ANTI-STRETCH MARKS
SCAR HEALING BOOSTER
EYE CONTOUR

EXSYMOL
MONACO

HYDROXYPROLISILANE

Hydroxyprolisilane : a specialized silanol

THE SILANOL TECHNOLOGY

Skin restructuring

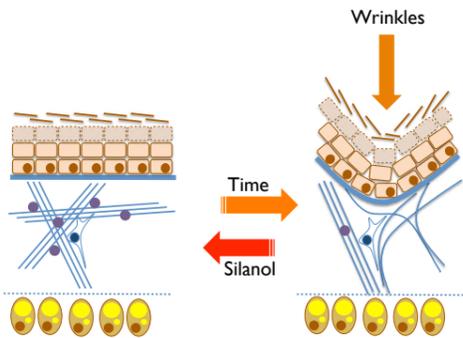
Silicium is an essential component of the skin. Indeed, by interacting with structure and elastic proteins within the dermis such as collagen fibers, elastin and proteoglycans, the silicium insures optimal skin organization and architecture.

However, with age the amount of silicium naturally present in the skin tends to decrease. As a result, an overall collapse of the skin architecture will happen, which will in turn induce skin metabolism slow down, inevitably leading to wrinkles.

(Please refer to ALGISIUM C leaflet for any further details about the SILANOL technology.)

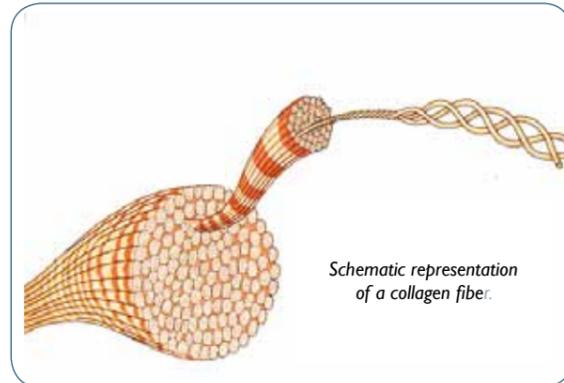
HYDROXYPROLISILANE is part of the silanol family. As such, it is a compound that possesses an organic silicium core.

A topic application of **HYDROXYPROLISILANE** on the skin will therefore replenish the skin natural pool of organic silicium. The skin will be rejuvenated, better organized and structured. Ultimately, the skin will become visibly younger.



Rejuvenating collagen fibers

Hydroxyproline is one of the main amino-acids constituting collagen. Together with hydroxy-lysine, they are the only two hydroxylated amino-acids that stabilize the collagen α -helix in a twisted shape for its elastic properties.



HYDROXYPROLISILANE is the perfect combination of the silanol technology and hydroxyproline since the organic silicium is stabilized by this amino-acid.

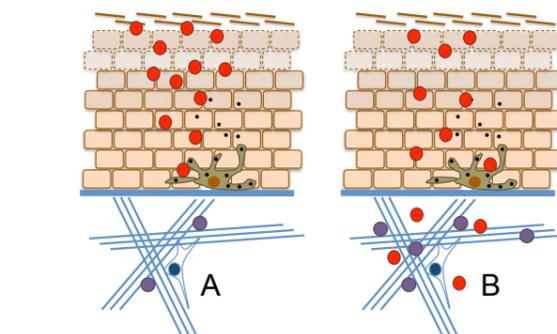
A topic application of **HYDROXYPROLISILANE** optimizes hydroxyproline essential delivery for damaged collagen replacement.

Silanol Synergetic benefits

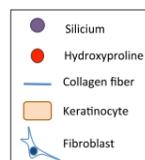
HYDROXYPROLISILANE is the union of hydroxyproline and the silanol technology.

From this union results a real synergy. While hydroxyproline stabilizes the organic silicium, hence insuring its efficacy, the organic silicium will, in turn, improve hydroxyproline's efficacy. In fact, because of the silicium's high affinity for the dermis tissue, it will preferably home to this skin compartment. In doing so, organic silicium will drag hydroxyproline toward the deepest layers of the skin hence improving its bioavailability and penetration.

HYDROXYPROLISILANE therefore combines the restructuring abilities of the silicium and potentialized hydroxyproline for a further enhanced collagen production.

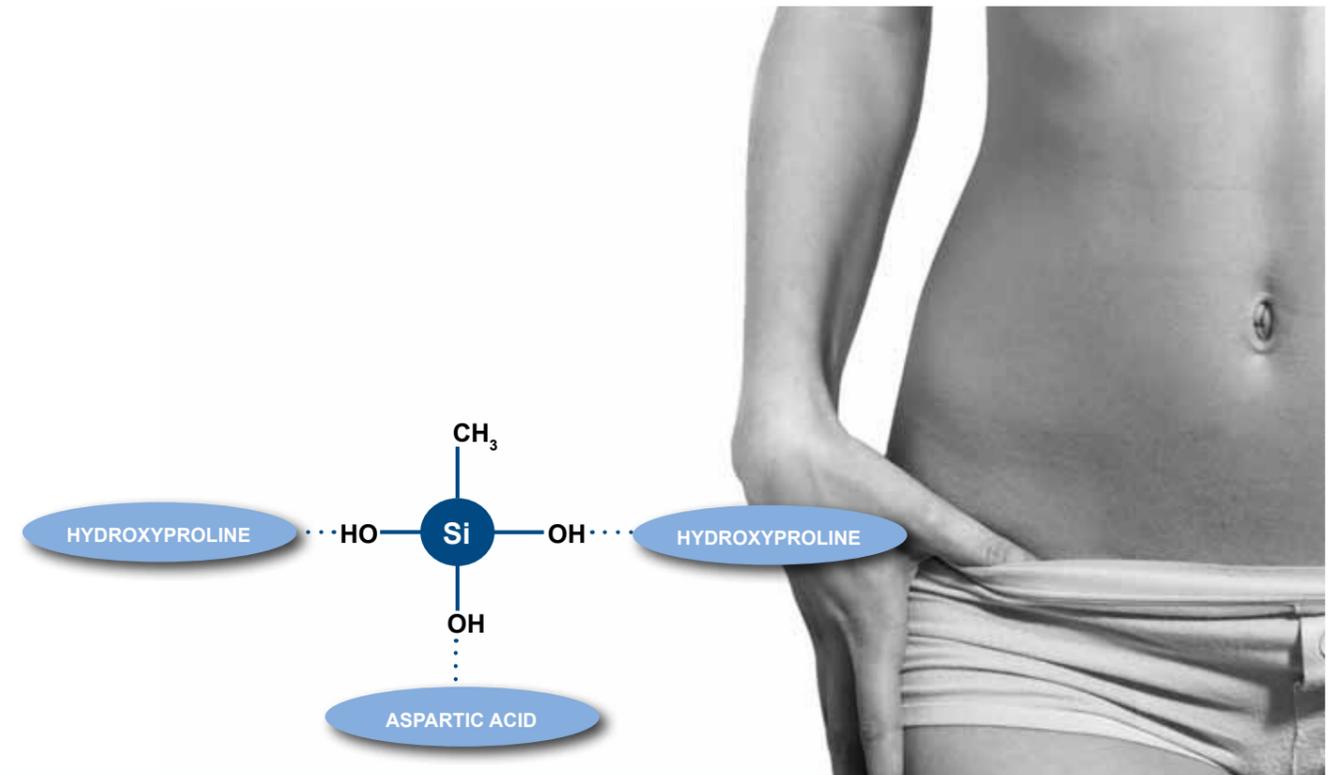


Synergy between silicium and hydroxyproline.
 A). Hydroxyproline by itself has mild bioavailability and is thus mainly confined in the epidermis
 B) After a treatment with **HYDROXYPROLISILANE** the dermis is provided with organic silicium and hydroxyproline since the later has its penetration improved.



HYDROXYPROLISILANE

Applications



INCI name: METHYLSILANOL HYDROXYPROLINE ASPARTATE

HYDROXYPROLISILANE is a silanol that combines the restructuring benefits of the organic silicium and hydroxyproline, a precursor of collagen, for an optimized collagen production.

Skin benefits

- Stimulates collagen production
- Increases skin cell proliferation
- Increases skin cell survival
- Optimizes the healing process



Cosmetic applications: body and face

BEAUTY CARE

- Anti-aging
- Anti-wrinkle
- Eye contour
- Body firming

DERMO COSMETIC

- Anti-stretch marks
- Scar appearance
- Scar prevention
- Pre-laser treatment
- Pre-surgery treatment

HYDROXYPROLISILANE

Preserving skin elasticity

Differences between young and mature skins

YOUNG SKIN

Fibroblasts: full potential
Environment: hydrated and vigorous (optimal micro-circulation, nutrient supply...)

- High metabolism (production of high quality elastic fibers)
 - Ability to contract on the elastic matrix
 - High ability to remove and replace damaged elastic fiber
 - Optimal cell cross-communication
- => This is leading to a fresh, well hydrated, firm and elastic skin

MATURE SKIN

Fibroblasts: aging metabolism
Environment: dehydrated and damaged (low hydration and disorganized environment induce high stress levels on fibroblast.)

- Low metabolism
 - Loss of their contractile activity
 - Low ability to replace damaged collagen
 - Impaired cell cross-communication
- => This is leading to an accumulation of damaged elastic fibers (collagen glycation...) inducing skin structural collapse and a loss of skin elasticity and firmness

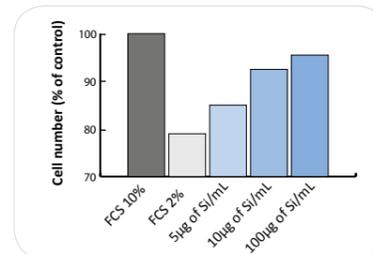
Therefore, in terms of anti-aging, aiming at skin firming effects requires:

- Healthy fibroblasts
- Optimally structured environment (hydration, cell communication, microcirculation...)

Fibroblast survival

Optimized fibroblasts resistance against stress (aging)

Organic silicium provides fibroblasts with a reliable protection that can reach up to 64% against aging as assessed using an aged cells model (2% FCS). This cyto-stimulation is due to a direct effect of organic silicium on fibroblasts.



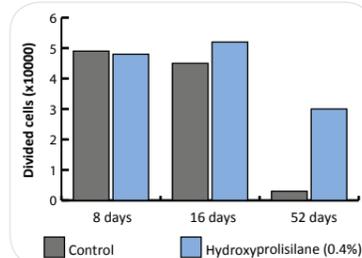
Optimized cell endurance Cell senescence reduction

All cells have a limited lifespan. After several divisions, they undergo the senescence process that leads to their death. Here, we show that a treatment with **HYDROXYPROLISILANE** increases the number of divisions a cell can undergo and therefore potentially increases the amount of new collagen produced.

Healthy fibroblasts



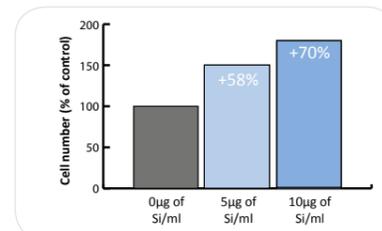
Senescent fibroblasts



Improved cell cross-communication

HYDROXYPROLISILANE is able to stimulate keratinocyte ability to support fibroblast proliferation. Keratinocytes (epidermis cells) preincubated with **HYDROXYPROLISILANE** can induce an increase of fibroblast's proliferation rate that can reach up to 70%.

=> improved skin compartments cooperation against stress.



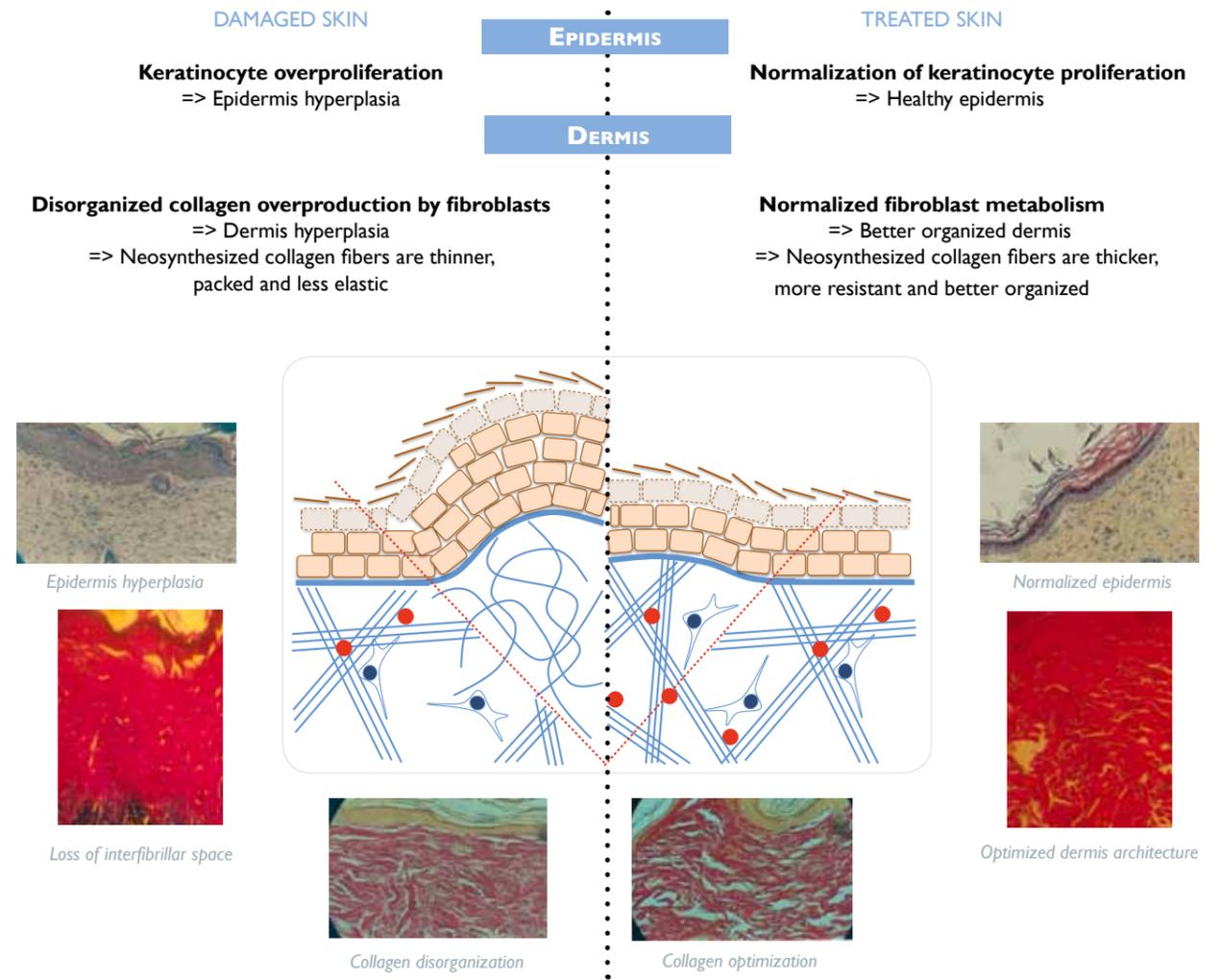
A treatment with **HYDROXYPROLISILANE** protects skin cells, prevents skin premature aging and opposes skin elasticity loss.

HYDROXYPROLISILANE

Optimized skin healing process

Skin repair process – Wounds, aging, stretch marks...

The combined benefits of organic silicium and hydroxyproline provide the skin with optimal structure and organization together with improved collagen production. **HYDROXYPROLISILANE** is therefore especially appropriate for the production of new tissue (scar healing) and for the reparation of damaged skin (aging, scar, stretch marks...).



HYDROXYPROLISILANE VS. HYDROXYPROLINE

ENERGY SAVING FOR AN OPTIMIZED SKIN REPARATION

Compared with hydroxyproline, **HYDROXYPROLISILANE** requires a significant lower amount of energy to complete the healing process, as assessed by measuring G6PDH activity. As a result, the combined effects of organic silicium and hydroxyproline prevent hypertrophic scars formation and restore the optimal elastic structure of the dermis.



The synergistic effects of **SILANOLS** demonstrates that **HYDROXYPROLISILANE** is so much more than a mixture of organic silicium and hydroxyproline.

HYDROXYPROLISILANE

Beauty applications – *in vivo* testing

HYDROXYPROLISILANE

Technical characteristics

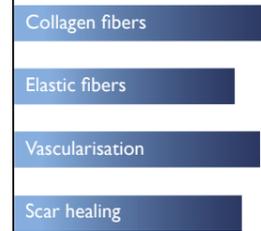
EYE CONTOUR, FACE AND BODY FIRING, ANTI STRETCH MARKS AND WOUND HEALING

All these cosmetic applications rely on the same metabolism. Indeed, it can be considered that all result from damages endured by the skin. We therefore decided to assess **HYDROXYPROLISILANE**'s efficacy for all these applications on volunteers.

Anti-age and anti-scar

Réalisés par un chirurgien plasticien, ces tests *in vivo* ont été menés sur des biopsies humaines pour une évaluation de l'efficacité d'**HYDROXYPROLISILANE** la plus juste.

Volunteers
0% .25% .50% .75% 100%



Realized under dermatological control:
43 women undertaking plastic surgery received a treatment with **HYDROXYPROLISILANE** (4.5%) twice a day for 18 to 190 days depending on the surgical procedure

Results :

- 1- Global improvement of skin quality
- 2- Increased number and quality of collagen
- 3- Increased number and quality of elastic fibers
- 4- Optimized scar healing process
- 5- Stimulated microcirculation

	Eye contour	Face and body firming	Anti-stretch marks	Wound healing
Specific benefits	- Microcirculation => release of stuck iron	- Effet raffermissant => qualité et nombre de fibres de collagène	- Firming effect => quality and number of collagen and elastin fibers	- Microcirculation => improved neovascularization
General Silanol benefits	- Firming effect => lipolysis stimulation - Crow feet wrinkles reduction - Anti-inflammatory => edema reduction - Hydration	- Hydration - Skin restructuring - Filling effect	- Hydration - Better organization of collagen fibers => improved skin resistance	- Optimal collagen neosynthesis - Anti-inflammatory => reduced itching - Hydration

HYDROXYPROLISILANE increases the skin global quality and helps it to recover from any injury or any age-induced damage

Anti-stretch marks

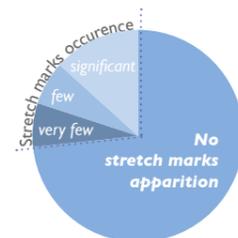
The apparition and/or the improvement of stretch marks was monitored on 23 volunteering women.



First pregnancy

15 women aged 22 to 31,
Treatment:
3rd month of pregnancy
until 1 month after delivery.

HYDROXYPROLISILANE (6%) once a day



80% of volunteers did not develop stretch marks

HYDROXYPROLISILANE efficiently reduces and prevents the apparition of stretch marks in the extreme stretching conditions of pregnancy.

ANALYTICAL COMPOSITION

Methylsilanetriol.....	0.3%
including organic silicium.....	0.115%
Hydroxyproline.....	0.6%
Aspartic acid.....	0.1%
Water (sqf).....	100%

PHYSICO-CHEMICAL CHARACTERISTICS

Limpid to slightly opalescent, colorless to pinkish liquid
pH ≈ 5.5
Density at 20°C ≈ 1.0
Miscible with water, alcohols and glycols
Not miscible in hexane

PRESERVATIVES

Different preservative systems are available in order to fit with your requirements. Please contact us for additional details about the available versions.

TOLERANCE AND TOXICITY STUDIES

HYDROXYPROLISILANE is perfectly tolerated. Tolerance and toxicity studies were performed using both *in vitro* (cell culture and reconstructed epidermis) and *in vivo* (human volunteers) methods.

FORMULATION

Advised doses: 3 to 6%.

HYDROXYPROLISILANE is not temperature sensitive.

In order to avoid slight coloration of the solution, it is recommended to store **HYDROXYPROLISILANE** away from the light.

AVAILABILITIES

HYDROXYPROLISILANE is available in 5, 30 kg and 1 ton drums.



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