HYDROXYPROLISILANE C N®

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

EXSYMOL
MONACO
Hydroxyproline and collagen

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 $\alpha$-helix in a twisted shape for its elastic properties.

**SILANOL SYNERGETIC BENEFITS**

**HYDROXYPROSLISILANE C N** is the perfect combination of the silanol technology and hydroxyproline since the organic silicium is stabilized by this amino-acid.

A topical application of **HYDROXYPROSLISILANE C N** optimizes hydroxyproline essential delivery for damaged collagen replacement.

**The silanol technology**

**Skin restructuration**

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.

**HYDROXYPROSLISILANE C N** is part of the silanol family. As such, it is a compound that possesses an organic silicium core.

A topical application of **HYDROXYPROSLISILANE C N** 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.

**HYDROXYPROSLISILANE C N** 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.

**HYDROXYPROSLISILANE C N** therefore combines the restructuring abilities of the silicium and potentialized hydroxyproline for a further enhanced collagen production.

**Schematic representation of a collagen fiber.**
HYDROXYPROLISILANE C N®

Applications

Skin Benefits

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

Cosmetic Applications: Body & 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

INCI name: METHYLISILANOL HYDROXYPROLINE ASPARTATE

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

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 cytostimulation 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 C N increases the number of divisions a cell can undergo and therefore potentially increases the amount of new collagen produced.

**Improvised cell cross-communication**

HYDROXYPROLISILANE C N is able to stimulate keratinocyte ability to support fibroblast proliferation. Keratinocytes (epidermis cells) preincubated with HYDROXYPROLISILANE C N 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 CN protects skin cells, prevents skin premature aging and opposes skin elasticity loss.
The combined benefits of organic silicium and hydroxyproline provide the skin with optimal structure and organization together with improved collagen production. HYDROXYPROLISILANE CN is therefore especially appropriate for the production of new tissue (scar healing) and for the reparation of damaged skin (aging, scar, stretch marks…).

**HYDROXYPROLISILANE CN®**

**ENERGY SAVING FOR AN OPTIMIZED SKIN REPARATION**

Compared with hydroxyproline, HYDROXYPROLISILANE CN 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 synergetic effects of SILANOLS demonstrates that HYDROXYPROLISILANE CN is so much more than a mixture of organic silicium and hydroxyproline.
**HYDROXYPROLISILANE C N®**

**EYE CONTOUR, FACE AND BODY FIRMING, 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 C N’s efficacy for all these applications on volunteers.

### ANTI-AGE AND ANTI-SCAR

Realized by a Brazilian plastic surgeon, these in vivo assays were performed using human biopsies for maximal evaluation of HYDROXYPROLISILANE C N’s efficacy.

<table>
<thead>
<tr>
<th>Volunteers</th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collagen fibers</td>
<td><img src="image" alt="Collagen fibers" /></td>
<td><img src="image" alt="Collagen fibers" /></td>
<td><img src="image" alt="Collagen fibers" /></td>
<td><img src="image" alt="Collagen fibers" /></td>
<td><img src="image" alt="Collagen fibers" /></td>
</tr>
<tr>
<td>Elastic fibers</td>
<td><img src="image" alt="Elastic fibers" /></td>
<td><img src="image" alt="Elastic fibers" /></td>
<td><img src="image" alt="Elastic fibers" /></td>
<td><img src="image" alt="Elastic fibers" /></td>
<td><img src="image" alt="Elastic fibers" /></td>
</tr>
<tr>
<td>Vascularization</td>
<td><img src="image" alt="Vascularization" /></td>
<td><img src="image" alt="Vascularization" /></td>
<td><img src="image" alt="Vascularization" /></td>
<td><img src="image" alt="Vascularization" /></td>
<td><img src="image" alt="Vascularization" /></td>
</tr>
<tr>
<td>Scar healing</td>
<td><img src="image" alt="Scar healing" /></td>
<td><img src="image" alt="Scar healing" /></td>
<td><img src="image" alt="Scar healing" /></td>
<td><img src="image" alt="Scar healing" /></td>
<td><img src="image" alt="Scar healing" /></td>
</tr>
</tbody>
</table>

**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

**HYDROXYPROLISILANE C N** 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 C N (6%) once a day

80% of volunteers did not develop stretch marks

#### Further pregnancy
8 women aged 22 to 31, Treatment: 3rd month of pregnancy until 1 month after delivery.
HYDROXYPROLISILANE C N (6%) once a day

62.5% of volunteers did not develop new stretch marks

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

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

PRESEVATIVES

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

Advised doses: 3 to 6%.
HYDROXYPROLISILANE C N is not temperature sensitive.
In order to avoid faint discoloration of the solution, it is recommended to store HYDROXYPROLISILANE C N away from the light.

FORMULATION

HYDROXYPROLISILANE C N is available in 5, 30, 60kg and 1 ton drums.

AVAILABILITIES

HYDROXYPROLISILANE C N is available in 5, 30, 60kg and 1 ton drums.