Cafeisilane®

Slimming
Anti-cellulite
Skin restructuration
Firming
Xanthine bases - reliable allies

Xanthine bases, among which caffeine and theophylline are the most representative, are regarded as the reference active ingredients for cosmetic slimming. Xanthine bases have an almost instantaneous effect on lipolysis, by activating or inhibiting enzymes involved with lipolysis. Disregarded their low bioavailability, they are the uncontested stars of slimming formulae.

Interest of the association between the SILANOL technology and caffeine

CAFEISILANE is part of the silanol family. As such, in addition to optimize caffeine bioavailability, it possesses skin restructuration abilities. Organic silicium, core of the silanol technology, is an essential component of the skin. Indeed, by interacting with structure and elastic proteins within the dermis such as collagen fibers, elastin and proteoglycane, the silicium insures skin organization and architecture.

A topical application of CAFEISILANE 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. (Please refer to ALGISIUM C leaflet for any further details about the SILANOL technology)

SILANOLS: 5 slimming properties

Synergy for perfect targeting

Organic silicium specific affinity for the dermis offers SILANOL high bioavailability properties and ease caffeine penetration into the skin.

Synergy for better slimming

CAFEISILANE gets advantage of organic silicium and caffeine properties to deliver a complementary slimming and firming activity.

Skin restructuration to fight gravity-induced degradations

Adipocyte volumetric growth increases gravity constraints on the skin. The silanol technology restructuring effect optimizes skin elasticity for a decrease of gravity degradations.

Hydration for better slimming

The silanol technology contributes to metabolic normalization and skin reorganization. Hydrated and organized skin takes a higher benefit of slimming active ingredients.

Respect of cell metabolisms for long lasting effects

Silanols are lipolytic active ingredients which metabolism normalizing effect induces global anti-aging benefits. These properties contribute to long-lasting firming and slimming effects.

CAFEISILANE

is a silanol that combines the restructuring and slimming properties of organic silicium and caffeine.
Skin bioavailability studies provided the below results:

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Caffeine 0.2%</th>
<th>CAFEISILANE 2%</th>
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<tbody>
<tr>
<td>+20% penetration</td>
<td></td>
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<td></td>
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<tr>
<td>+5% available caffeine</td>
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<tr>
<td>+22% lipolytic stimulation</td>
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CAFEISILANE demonstrates its advantage in terms of lipolytic stimulation at equivalent concentration of caffeine.

Our further testing will demonstrate that CAFEISILANE offers global skin benefits in addition to a more efficient lipolytic activity.

FACTORs involved in lipogenesis and lipolysis

- **Lipolysis** releases fat by converting triglycerides into fatty acids and glycerol. This reaction is catalyzed by the triglyceride lipase. This enzyme is activated by the rise of intracellular concentrations of cAMP.
- **Lipogenesis** accumulates fatty acids converting these components as triglycerides in adipocytes. Lipoprotein lipase catalyses this reaction.

**FACTORs involved in lipolysis**

- **Fatty acids** are released from triglycerides by the action of the lipase. This process is regulated by the enzymes involved in the activation and inhibition of the lipase.

**FACTORs involved in lipogenesis**

- **Fatty acids** are synthesized from glycerol and are stored as triglycerides in adipocytes. This process is regulated by the enzymes involved in the synthesis and degradation of triglycerides.

Double regulation of adipocyte volume

**Lipolysis activation**

Caffeine and organic silicium optimize lipolysis by 2 complementary mechanisms. Caffeine maintains sufficient intracellular cAMP concentration. Caffeine inhibits the enzyme responsible for the inactivation of cAMP into 5’AMP. Silicium activates adenylcyclase that captures AMP.

**Lipogenesis inhibition**

Most stimulating active ingredients only target lipolysis activation. CAFEISILANE directly inhibits the lipoprotein lipase responsible for fatty acids accumulation in adipocytes.

As at equivalent concentration, CAFEISILANE demonstrates its synergic benefits, offering a much higher lipolysis activation and a strong lipogenesis inhibition.

**Draining and anti-cellulite effect (in vivo)**

Control of adipocyte differentiation

- Hypertrophy and multiplication of mature adipocytes increase with skin aging.
- This phenomenon is mainly due to the over-expression of genes controlling stem cell differentiation into adipocytes. CAFEISILANE (4%) limits by 75% the over differentiation of adipocytes after key genes activity was reduced due to normalized metabolisms.

Control of adipocyte activity by cell communication

- Keratinocytes (epidermis cells) release cytokines able to stimulate lipolysis. While caffeine has no significant activity on keratinocyte activity, CAFEISILANE (3%) increased by 3 times keratinoocyte’s ability to support adipocyte activity.

Normalization of adipocyte metabolisms

Skin aging impairs compartment cross-communication. Adipocyte metabolisms are also concerned by this global skin disorganization. Indeed, aging induces accumulation of localized fat stack.

Our studies demonstrated that SILANOL prepares the skin and favors the reestablishment of cross-communications between the different skin compartments and skin cells.

We observed 2 remarkable benefits relying on this metabolic normalization:

- **Control of adipocyte differentiation**
- **Control of adipocyte activity by cell communication**

Draining and anti-cellulite effect (in vivo)

- Being a structural element of connective tissues (skin, bones, blood vessels…), organic silicium offers benefic on skin microcirculation.
- Realized by a dermatologist, this in vivo assay was performed in order to evaluate organic silicium efficacy on microcirculation activation.
- Microcirculation increases draining efficacy against cellulite, favors toxin elimination and prevents from the emergence of micro-edema responsible for orange peel.

Fighting skin slackening (in vivo)

- **CAFEISILANE** fights undesirable consequences of cellulite: loss of elasticity and localized inflammation.
- The synergy between organic silicium and caffeine therefore counters all the possible signs of gravity-induced skin premature aging.
  - Sensitive skin of the face
  - Eye contour
  - Face, neck, décolleté and bottom contouring.

![Image](www.exsymol.com)
Cafeisilane

Cosmetic benefits

TESTS ON VOLUNTEERS

Cosmetic slimming

Short-term slimming efficacy

Treatment with 3% of CAFEISILANE (equivalent to 40mg/L of silicium) on 14 volunteers aged 25 to 43 for 4 weeks, under dermatologist control.

Clinical benefits:

CAFEISILANE offers fast slimming based on the synergy between caffeine and organic silicium. 86% of the volunteers were satisfied with CAFEISILANE slimming and anti-cellulite properties.

Long-term slimming efficacy

Treatment with 50mg/L of silicium (equivalent to 4% of CAFEISILANE C) on 10 volunteers aged 25 to 43 for 10 weeks, under dermatologist control.

Clinical benefits:

SILANOLS induce a strong dermal and hypodermal restructuration. The centimetric loss comes along satisfaction of intense sculpting and firming effects.

Skin quality improvements and anti-wrinkles benefits

Skin quality:

Treatment with 50mg/L of silicium (equivalent to 4% of CAFEISILANE C) on 20 volunteers aged 35 to 55 for 4 week, under dermatologist control.

Clinical benefits:

SILANOLS restructuring benefits improved all the major signs concerned with skin premature aging, delivering a rejuvenation effect for 80% of the volunteers.

Anti-wrinkle:

Treatment with 50mg/L of silicium (equivalent to 4% of CAFEISILANE C) on 20 volunteers aged 35 to 55 for 4 week, under dermatologist control.

SILANOLS induce a strong dermal and hypodermal restructuration. The centimetric loss comes along satisfaction of intense sculpting and firming effects.

Analytical composition

Physical-chemical characteristics

Preservatives

Tolerance and toxicity studies

Formulation

Availability

Methylsilanetriol ........................................... 0.45%
including organic silicium ......................... 0.135%
Caffeine ................................................... 4.00%
Polymannuronic acid ................................. 0.35%
Water (qsp) ............................................... 100%

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

CAFEISILANE 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%
CAFEISILANE is not temperature sensitive but we recommend not to freeze it.

In the case of an apparition of caffeine crystals, heat using a water bath (40°) in order to redissolve these crystals.

CAFEISILANE is available in 5 and 30 kg drums.