ARGISIL C is a Silanol. Silanols are derivatives of organic silicon, hydrosoluble, with numerous hydroxyl functions and synthesized by reaction on various radicals, selected to confer stability and specificity to the compound. All silanols are endowed with some particular biological properties, and some of these properties are amplified by the nature of the radicals. In the case of ARGISIL C, the radical selected is L-arginine.

Analytical composition

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-arginine</td>
<td>0.56 %</td>
</tr>
<tr>
<td>Methylsilanetriol</td>
<td>0.30 %</td>
</tr>
<tr>
<td>in which silicon represents</td>
<td>0.9 ‰</td>
</tr>
<tr>
<td>water sq</td>
<td>100.00 %</td>
</tr>
</tbody>
</table>

Technical characteristics

- Very slightly opalescent liquid, colorless
- pH: about 5.5
- Density at 20°C: about 1.0
- Miscible with water, alcohols and glycols.

Availability

5 or 30 kg drums

Uses

- Lipolysis, anti cellulite: body slimming
- Remodeling / Face «lifting»
- Puffy eyes
- Anti-aging: preventing and repairing effects
BIOLOGICAL ACTIVITIES

Lipolysis - Anti cellulite effect / Cell communication

The regulation mechanisms of adipocyte metabolism are better and better understood, and this understanding leads to a wide variety of slimming products (blocking of glucose captation, inhibition of lipoprotein lipase, use of activators or inhibitors of the adrenergic receptors, ...). Several endogenous messengers, involved in cell communication and capable of modulating lipolysis or the stocking of fat in the adipocytes, have also been identified. These substances, of multiple mode of action, are part of a complex system of regulation.

Recent works revealed the involvement in the metabolism of the adipocytes of a particular biological mediator, nitric oxide (NO). It has been showed that the adipose tissue produces important quantities of this cell messenger due to the presence in the adipocytes of a specific enzyme, the NO synthase. Besides, keratinocytes and fibroblasts have a particular form of NO-synthase, said "constitutive", capable of producing for a short period, slight quantities of NO.

ARGISIL C is capable of stimulating the secretion of NO, endogenous messenger, from the cells of upper layer epidermis (keratinocytes) and from the fibroblasts. Nitric oxide (or a migrating species relay of NO with a higher life time) produced in very tiny quantities by the cells of the connective tissue, activates lipolysis (release of glycerol and fatty acids by the adipocytes) through specific receptors localized in the membrane of adipocytes.

The quantity of NO released in the fibroblasts culture medium, was measured by spectrophotometric titration of the nitrates based on the Griess' reaction.

A significant amount of NO is found in the control fibroblasts culture medium, while a greater but moderate amount, is found when fibroblasts are cultured in presence of ARGISIL C.

Induction of an endogenous lipolytic messenger : NO

The experimental bicompartement cell culture model, designed in our laboratories, was used to demonstrate that cells, such as keratinocytes or fibroblasts, stimulated by ARGISIL C, could modify the lipolytic activity of adipocytes.

Keratinocytes (or fibroblasts), placed in an insert system, are cultured in presence of the active. The substances secreted by the cells (conditioned medium) are then collected and tested on target adipocytes cells.

The glycation phenomenon (non enzymatic reaction of a sugar with proteins) is widely spread and induces in all cases protein alterations (irreversible cross-linking). Note that cataract is a consequence of the cross-linking of the crystalline proteins, especially on diabetic people, as well as the Maillard reaction in «gastronomical chemistry» (browning and hardening of the meat). Then finally the aging and loss of elasticity of the skin arises as a consequence of the cross-linking of proteins such as collagen and elastin.

The anti-glycation activity of ARGISIL C was substantiated in vitro by submitting collagen, as the target protein, to glucose-6-phosphate, the glycation agent. The SDS PAGE electrophoresis, performed after 3 weeks of incubation, revealed that Argisil C was capable of protecting collagen.

Anti-glycation effect

EXSYMOL
**Tolerance study**

The tolerance has been studied *in vitro* by alternative methods either on cell culture or reconstituted epidermis. The ocular tolerance is evaluated by studying the cytotoxicity on fibroblasts culture isolated from rabbit cornea. The cutaneous tolerance is evaluated on reconstituted epidermis by evaluation of cell viability after a contact period of 24 hours with the product. The results observed indicate that:

- ARGISIL C is **non irritant** according to the protocol of ocular irritation,
- ARGISIL C is **non irritant** according to the protocol of primary cutaneous irritation,
- ARGISIL C is **not phototoxic**.

**Formulation**

ARGISIL C is stable for pH included between 4 and 8. The suggested use level is of 5 %. The product has no incompatibilities of common knowledge.

Importante remark: ARGISIL C must not be stored at temperature inferior to 0°C otherwise an irreversible polymerization occurs.

**Informations: specialized literature**

Existing studies

Technical document

Cell communication - Induction of an endogenous lipolytic message by ARGISIL C

Toxicity - Tolerances