

## ACIDO HIALURONICO 1% + DMAE 1% + SILICIO 0,5% vial

Hyaluronic acid (HA) is a polysaccharide from the type  $\beta$ - links glycosaminoglycans, having a structural function, such as chondroitin sulfates. It has the capacity to absorb more than 1000 times its volume in water.

That is why it is used in epidermis moisturizing the as it reconstructs the fibers that hold skin tissues, giving a better shape. With a very high viscoelasticity, it is a natural component part of the skin and is essential to fight aging and wrinkles due to its high moisturizing power.



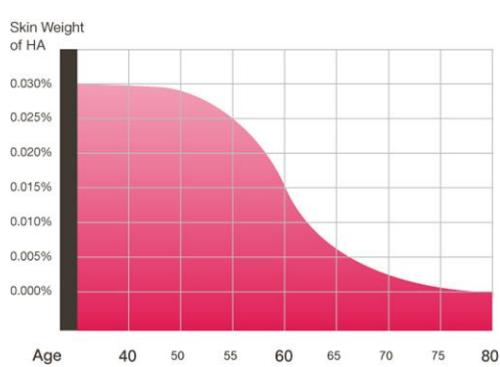
In the dermis, hyaluronic acid is the main component of the extracellular matrix (ECM). Fibroblasts are a cell type responsible for the production of collagen and elastin in the

skin. ECM extracellular matrix is the space between the skin cells. This makes the skin soft, smooth and elastic.

Young skin (soft and elastic) contains high amounts of HA (Hyaluronic acid).

Hyaluronic acid contained is of biotechnological origin, has a molecular weight of 50-110 kDa:

- ✓ Retains moisture and elasticity in the tissues (moisture retention in the extracellular matrix (ECM))
- ✓ Protects against environmental stress
- ✓ Helps to reduce the appearance of wrinkles and expression lines.



## DIMETHYLETHANOLAMINE, DEANOL (DMAE) + LACTIC ACID

It is indicated for the treatment of flaccid and/or aged skins. Contains Dimethylamino Ethanol (DMAE) and Lactic Acid, actives with tensing and moisturizing properties that combat facial and body flaccidity achieving an immediate lifting effect. It attenuates wrinkles by firming and improving skin elasticity.

Dimethylaminoethanol, dimethylethanolamine, deanol or DMAE, is a liquid and transparent organic compound. It is a natural nutrient that is part of our own organism (the human brain secretes it in small amounts) and is also present in large quantities in nature (especially in fish such as salmon, anchovy or sardines).

Dimethylaminoethanol is a biochemical precursor of acetylcholine, a neurotransmitter involved in multiple bodily activities.



### DMAE Mechanism of action

#### **Skin aging:**

Intrinsic aging is related to the passage of time and individual genetic factors. Extrinsic aging depends on environmental factors such as solar radiation, cold, stress, pollution and tobacco consumption etc.

Morphologically the skin is dry, appears sagging, irregular pigmentation, wrinkles, and general atrophy.

There is an epidermal thinning with a decrease in the number of melanocytes. In the dermis, there is a decrease in fibroblasts, mast cells, and venules. This decrease in the vascular network causes atrophy of the glands and hair follicles with a lower proliferative capacity of the fibroblasts and decrease in the number of elastic fibers.

Clinically photoaging is translated into wrinkles, telangiectasia, atrophy and areas of depigmentation and keratosis.

In the processes of intrinsic and extrinsic aging are present free radicals that alter the cell membranes reducing their permeability and altering the collagen fibers.

DMAE acts on the membranes by stabilizing them and decreasing the concentration of free radicals. DMAE, dimethylethanolamine for its part, is used in anti-aging treatments and in improving skin tension. It makes the skin more resistant to stress, and offers protection against free radicals, without actually being considered an antioxidant.

**In aging the production of acetylcholine decreases and, consequently, a decrease of the effect of this substance on the muscle takes place.** The only method to reverse this process is the application of DMAE which increases muscle contraction and firmness of the skin, raising the level of active acetylcholine in the body.

#### 1. 1. DMAE increases the synthesis/release of acetylcholine in such a way that it produces:



- ✓ **Immediate lifting effect:** Acetylcholine is received through the nicotinic receptors of the epidermis, producing a contraction of the epidermis, through the contracture of the epidermal keratinocytes, in this way a visible lifting effect (tensor effect) is produced in few minutes (and have a limited duration between 8-12h).
  
- ✓ **Long-lasting firming action:** The increase in the levels of acetylcholine increases the number of stimuli received by the muscle so that it contracts, that is, it increases the muscular activity. By increasing the contractions, the muscle appears more toned and presents a greater mechanical resistance.

#### 2. DMAE stimulates the synthesis of collagen in such a way that:

- ✓ **Regenerates the dermal matrix:** by stimulating neo-collagenogenesis, increasing the production of new collagen fibers and inhibiting and reversing protein cross-linking (cross-linking, entanglement and loss of elasticity of collagen fibers).

#### 3. DMAE increases the synthesis of phosphatidylcholine such that:

- ✓ **Stabilizes cell membranes:** by stimulating the synthesis of phosphatidylcholine (the main component of cell membranes) it repairs the damage caused by free radicals in cell membranes.

### 3- SILICON

Silicon is a trace element that is present in our body naturally. Its function is to develop and form our tissues, muscles and skin, as well as nails, cartilage or tendons. Silicon is a fundamental element in the formation of collagen and natural elastin, so it is essential to give strength and resistance to our tissues.

#### **Silicon properties**

- Stimulates the production of collagen to end skin sagging.
- Increases the production of elastin to improve the elasticity of muscles and other organs such as the heart.
- Improves joint flexibility.
- Strengthens and takes care of cartilage while protecting the ligaments.
- Helps accelerate the recovery of muscle injuries.
- Influences bone development and calcium assimilation.

#### **Properties of silicon for the skin**

As for the skin, silicon has an important incidence, since it is a component of it. Thus the functions of silicon in the skin are: Protection of the skin, influencing its architecture and its elasticity. Silicon deficit is one of the main causes of wrinkles or dry skin. It helps to increase and improve the absorption of other components.



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