

# nano retinol



## Whitening and Antiaging

**Active Ingredient:** Retinol.

**Nano Retinol** is an encapsulated active ingredient in lipid particles with a diameter larger than 200nm. Encapsulation through the technology developed by Nanovetores allows the stabilization of sensitive components, therefore, complex of being formulated. The encapsulated active ingredient is fully stable and after permeation in the skin, oxidizes and becomes a retinoic acid, ensuring greater results related to whitening and reducing skin wrinkles safely.



### Characteristics

**Aspect:** Cream to yellow milky liquid.  
**Use Concentration:** Up to 6,5%  
**Stability pH:** 2,0 to 7,0  
**Retinol Concentration:** 150.000 UI/g  
**Solubility:** Water Dispersible **Particle:**  
Lipid  
**Release Trigger:** Enzymatic



### Benefits

- Whitening
- Antiaging
- Expression lines reducer
- Moisturizer



### Usage

Primers, creams, masks, sprays, gels, facial cream gels and gels for the eye area, liquid soaps, makeup remover and products to standardize skin tone.

# Description

Nano Retinol is a retinol-based product encapsulated in lipid nanoparticles with enzymatic release trigger. It has extended release, releasing about 80% of its contents over a period of 8 hours after the product is applied. The encapsulation of active ingredients through VAM® technology allows the stabilization of extremely sensitive components, therefore, complex of being formulated, providing increased skin permeation, better sensory experience for the final product, as well as high hydration, since these active ingredients focus on lipid replacement and prevent transepidermal water loss.

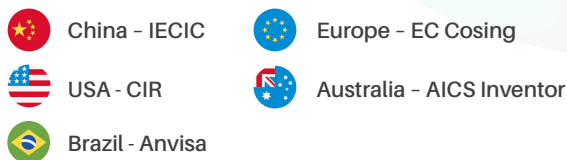
Retinol is the alcohol form of vitamin A and is the precursor of other forms of this vitamin, such as retinoic acid. When it is absorbed into the skin, the retinol is oxidized to retinoic acid. However, retinol is safer for use in cosmetic formulations, because it is less irritating and less sensitizing when compared to retinoic acid. Thus, retinol has potential to deliver the powerful effects of retinoic acid on human skin with improved tolerance (KAFI et al., 2007). Retinol operates in the maintenance of normal skin, by acting in the process of hyperkeratinization, in the differentiation of epithelial cells and in the synthesis of collagen and elastin, providing softness to the skin, and favoring a younger and healthier appearance. It acts on epidermal renewal, both during natural cellular renewal as in the case of reparation of epidermal lesions. Moreover, it performs a protective and neutralizing effect against the deleterious conditions of oxidative stress, exposure to UV radiation and skin aging (MAIA CAMPOS et al., 1999; GASPAR; MAIA CAMPOS, 2007; SORG; SAURAT, 2014).

When applied topically, retinol reduces fine wrinkles associated with natural aging of the skin. Retinol significantly increases the production of collagen and the quantity of glycosaminoglycan, an essential component of the extracellular matrix with hygroscopic function, providing intense hydration to skin and reducing expression lines (KAFI et al., 2007).

## Regulatory Information

INCI NAME	CAS NUMBER	EINECS NUMBER
AQUA	7732-18-5	231-791-2
RETINOL	68-26-8	200-683-7
CAPRYLIC/CAPRIC TRIGLYCERIDE	73398-61-5	277-452-2
LINOLEIC ACID	60-33-3	200-470-9
OLEIC ACID	112-80-1	204-007-1
POLYSORBATE 80	9005-65-6	-----
PPG-15 STEARYL ETHER	25231-21-4	-----
STEARETH-2	9005-00-9	500-017-8
STEARETH-21	9005-00-9	-----
PHENOXYETHANOL	122-99-6	204-589-7
CAPRYLYL GLYCOL	1117-86-8	214-254-7
BHT	128-37-0	204-881-4

### Approved by International Regulations:



## Physical-Chemical Information

PHYSICAL STATE	LIQUID
FORM	MILKY
COLOR	YELLOW CREAM
ODOR	CHARACTERISTIC
pH	4,0 TO 7,0
SOLUBILITY	WATER DISPERSIBLE
RELATIVE DENSITY	0,9 TO 1,1 g/ML
CHEMICAL IDENTITY	ORGANIC
CHARACTERIZATION	BLEND

\* As it is a suspension of particles, agitate before using.



**STORAGE:**  
MANTAIN IN TEMPERATURE BETWEEN 20 AND 25 °C.



**COMPATIBILITY:**  
ANIONIC, NONIONIC AND CATIONIC BASES. FOR LOW VISCOSITY WATERY SOLUTIONS, THE USE OF A SUSPENDING AGENT IS INDICATED.

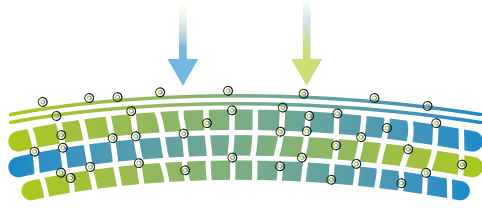


**INCOMPATIBILITY:**  
SODIUM CHLORIDE, ETHANOL AND OTHER ORGANIC SOLVENTS.

## References

- 1 - GASPAR, L.R.; MAIA CAMPOS, P.M.B.G. Photostability and efficacy studies of topical formulations containing UV-filters combination and vitamins A, C and E. International Journal of Pharmaceutics, v. 343, n. 1-2, p. 181-189, 2007.
- 2 - KAFI, R. et al. Improvement of Naturally Aged Skin With Vitamin A (Retinol). Arch Dermatol. 143(5):606-612, 2007.
- 3 - MAIA CAMPOS, P.M.B.G. et al. Histopathological, morphometric and stereological studies of dermocosmetic skin formulations containing vitamin A and / or glycolic acid. Journal of Cosmetic Science. 50 (3): 159-70, 1999.
- 4 - SORG, O., SAURAT, J.H. Topical retinoids in skin ageing: A focused update with reference to sun-induced epidermal vitamin A deficiency. Dermatology. 228 (4): 314-25, 2014.

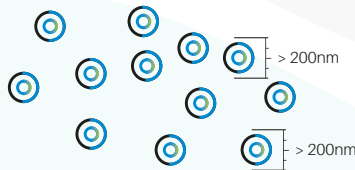
# Nanovetores Encapsulation Technology



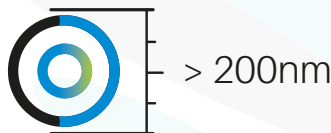
**Multifunctional Lipid Particles** that promote hydration and high permeation



**Active Ingredient Protection** against oxidation resulted from interaction with external environment and other components of the cosmetic formulation.



**Monodispersity**, that ensures control of the particle size, providing adequate permeation to its proposed action.



**Secure particles** larger than 200nm, biocompatible and biodegradable.



**Enzymatic Specific Release Trigger**, in which the enzymes present in our skin promote the degradation of the capsule, releasing the active ingredient.

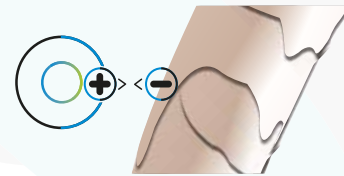


Free form active ingredient permeation



Encapsulated active ingredient permeation

**Greater Permeation** on the contact surface due to the small size of the capsule.



**Surface Charge Control** of the particle, promoting greater affinity with the contact surface.



**Water Base.** Active ingredients are manufactured without the use of organic solvents, ensuring safety for users and the environment.

## Use Encapsulated Active Ingredients and Ensure:

Stability Improvement

Increased compability in the formulation

Occlusion of odors

Increased skin permeation

Reduced dose

Use of sensitive active ingredients (without refrigeration)

Increased Solubility

Prolonged release

Increased effectiveness