

nano nails



Repair and Strengthening Action for Nails

Active ingredients: Essential oils of Lemongrass, Melaleuca and Clove.

O Nano Nails is a blend of active ingredients encapsulated in lipid particles with particle diameter larger than 200 nm. The blend encapsulation through the technology developed by Nanovetores allows the stabilization of sensitive components, therefore, complex of being formulated in their free form. The ingredients acts to combat leukonychia, as well as in the repair and strengthening of nails in general. Due to its natural features and non-existent chemical aggression, Nano Nails can be used daily providing in continuous applications, the repair of damaged, dull and brittle nails.



Features

Aspect: Milky liquid from cream to yellow.

Usage Concentration: 1.0 to 25%

pH stability: 4.0 to 8.0

Solubility: Water Dispersible

Particle: Lipid

Release Trigger: Enzyme



Benefits

- Antifungal and antimicrobial action
- Anti-inflammatory
- Antiseptic
- Repairer
- Strengthener



Usage

Gel cream and liquid base.

Description

Nano Nails is a natural cosmetic ingredient consisting of a blend of essential oils of lemongrass, melaleuca and clove, encapsulated in high permeation nanoparticles with proven clinical efficacy in the repair of damaged nails, with dull, whitish and brittle appearance, usually diagnosed as leukonychia.

Lemongrass is a plant originally from Asia, mainly from India. From it is extracted an essential oil whose main component is Citral (Geraniol) largest responsible for the antifungal, anti-microbial, anti-inflammatory and analgesic properties of this oil ⁽¹⁾⁽²⁾.

Clove is a dried flower bud from a tree native to the Moluccas, Indonesia. The properties of its essential oil are attributed to its main constituent, eugenol, which has an important antibacterial and antifungal effect.

The main component of Melaleuca essential oil is terpinen-4-ol, which, according to studies, is responsible for antimicrobial and antiseptic actions that occur through a leukocyte activation mechanism. Its antimicrobial action includes fungi, yeasts, gram-negative bacteria and the herpes simplex virus.

According to HAMMER⁽³⁾, Melaleuca essential oil can cause allergic reactions in predisposed individuals. These reactions are caused not by the oil itself, but due to oxidation reaction byproducts that occur by exposure of components to light and oxygen. Encapsulation of the active ingredient promotes controlled release and protects the interaction with the other components of the formula and the environment, preventing oxidation and avoiding potential skin irritation. Encapsulation also promotes occlusion of the characteristic odor of Melaleuca essential oil, ensuring an improvement in the sensory experience of the final product.

Product efficacy for application on nails is compromised by the complexity of the nail structure that hampers the access of active ingredients. The technology developed and patented by Nanovetores, present in Nano Nails, promotes increased permeation of the active ingredients' nanocapsules to the deeper layers of the nail plate, where the active ingredient will have an effective, safe and fast action.

Regulatory Information

INCI NAME	CAS NUMBER
AQUA	7732-18-5
OLEIC ACID	112-80-1
STEARIC ACID	57-11-4
SODIUM METHYL COCOYL TAURATE	61791-42-2
CYMBOPOGON FLEXUOSUS OIL	91844-92-7
MELALEUCA ALTERNIFOLIA LEAF OIL	68647-73-4
EUGENIA CARYOPHYLLUS LEAF OIL	8015-97-2
PHENOXYETHANOL	122-99-6
CAPRYLYL GLYCOL	1117-86-8
CITRAL	5392-40-5
EUGENOL	97-53-0
GERANIOL	106-24-1
LIMONENE	5989-27-5
LONALOL	78-70-6
CITRONELLOL	106-22-9
FARNESOL	4602-84-0
ISOEUGENOL	97-54-1
BENZYL BENZOATE	120-51-4

Physical-Chemical Information

PHYSICAL STATE	LIQUID
FORM	MILKY AND VISCOUS
COLOR	BEIGE TO YELLOW
ODOR	CHARACTERISTIC
pH	5.0 TO 7.0
SOLUBILITY	WATER DISPERSIBLE
RELATIVE DENSITY	0.9 TO 1.1 g/ml
CHEMICAL IDENTITY	ORGANIC
CHARACTERIZATION	BLEND

*As it contains natural active ingredients, the product may change in color and odor.

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



STORAGE:
KEEP IN TEMPERATURE BETWEEN 20°C - 25°C



COMPATIBILITY:
EMULSIONS O/W AND W/O UP TO 25%. IN NAIL POLISHES, UP TO 5%.



INCOMPATIBILITY:
ETHANOL AND OTHER ORGANIC SOLVENTS

Approved by International Regulations:



China - IECIC



Europe - EC Cosing



USA - CIR



Australia - AICS Inventor



Brazil - Anvisa

References

1 - TASKINEN, J.; MATHELA, D.K.; MATHELA, C.S. Composition of the essential oil of Cymbopogon flexuosus. Journal of Chromatography A, v. 262, p. 364-366, 1983.

2 - CHANDRASHEKAR, K.S.; PRASANNA, K.S. Analgesic and Anti-inflammatory Activities of the Essential oil from Cymbopogon flexuosus. Pharmacognosy Journal, v. 2, n. 14, p. 23-25, 2010. BUDHIRAJA, S.S.; et al. Biological Activity of Melaleuca alternifolia (Tea Tree) Oil

3 - HAMMER, K.A.; et al. A review of the toxicity of Melaleuca alternifolia (tea tree) oil. Food and Chemical Toxicology, v. 44, p. 616-625, 2006. GÜLÇİN, I.; et al.

Antioxidant activity of clove oil - A powerful antioxidant source. Arabian Journal of Chemistry, v. 5, n. 4, p. 489-499, 2012

Effectiveness Test

Test 1 -

Product efficacy against leukonychia.

Assessed product: Nano Nails 25% in cream base.

Before



After



Conclusion: The product had proven efficacy in the treatment of leukonychia in 61% of cases evaluated with effective improvement after 4 days of product application

Test 2 -

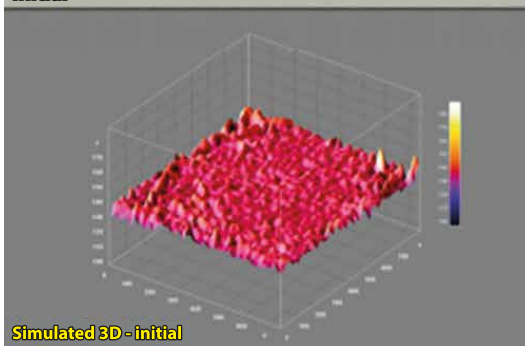
Reduction of nail streaks .

Assessed product: Nano Nails 25% in nanostructured liquid base.

Before



Initial

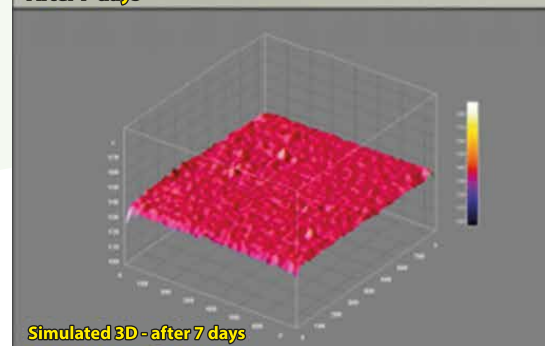


Simulated 3D - initial

After



After 7 days



Simulated 3D - after 7 days

Conclusion: It was observed that after 7 days of use of the sample under study, there was significant reduction in flaking and whitish appearance of the skin in the nail folds ⁽¹⁾, reducing roughness ⁽²⁾ and curls ⁽³⁾ of the nail plate, the latter, given by reducing the depth of the longitudinal streaks. Simulated 3D image was obtained by projection of roughness calculated in a rectangular area of the nail plate ⁽²⁾. Curls were obtained by profilometry curve obtained transversely to the nail plate ⁽³⁾.

Suggested Formula

Nano Nails 25% in Cream Base

PHASE I %

EDTA.....	0,05
Glycerin.....	3,00
Water qsp.....	100,00

Technique: Heat to 75 - 80 °C

PHASE II %

Hydroxyethyl.....	0,55
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Technique: Reserve

PHASE III %

Olivax.....	1,00
Olivem 1000.....	2,50
MEG.....	5,50
Cetostearyl alcohol 30/70.....	2,30
BHT.....	0,05
Dimeticone.....	1,00
Mineral oil.....	3,75
TCM.....	3,75

Technique: Heat to 75 - 80 °C

PHASE IV %

Nano Nails.....	25,00
Preservative.....	qs

Technique: Reserve

- 1 - Disperse phase II in I so as not to form lumps;
- 2 - Add phase III on I+II at 80 °C under stirring;
- 3 - Adjust pH to 5.5 to 6.0;
4. Add phase IV below 40 °C.

NOTE: It is recommended the use of 25% concentration in Nanostructured (Nanovetores) creams or liquid base for the proposed treatment and repair.

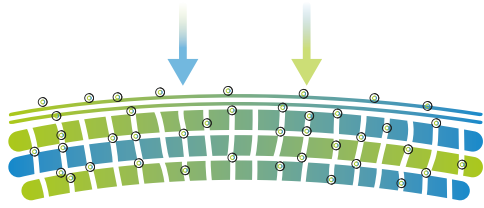
For products, whose purpose is maintenance and beautification, a concentration of 1 to 5% can be used.

Application to moisturize and repair cuticles should be at a concentration of 1 to 5%

Usage Protocol

- 1 For the proposed treatment and repair applied on the nails (unpolished) twice a day.
- 2 To moisturize cuticles, apply once a day (with or without nail polish).

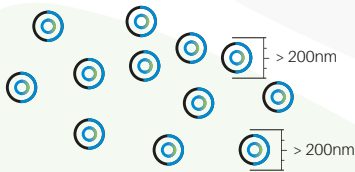
Nanovetores Encapsulation Technology



Multifunctional Lipid Particles that promote hydration and extended effect.



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, where enzymes present on the skin disintegrate particles, releasing the active ingredient specifically where it needs to act.

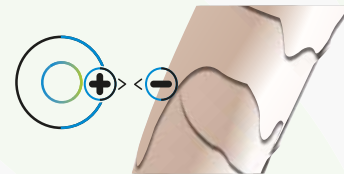


Active ingredient deposition when applied freely



Greater permeation of the active ingredient when encapsulated

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

Oclusion of odors

Increased skin permeation

Reduced dose

Use of sensitive active ingredients (without refrigeration)

Increased Solubility

Prolonged release

Increased effectiveness