

# nano relief



## Instant Relief from Muscle Pain

**Active Ingredients:** Essential Oils of Sweet Birch and Vetiver.

Nano Relief is a blend of encapsulated essential oils. It has a prolonged release, releasing about 80% of its contents gradually over a period of 8 hours after product application, ensuring immediate and continuous relief from muscle pain. Blend encapsulation through the Nanovetores Technology allows the stabilization of sensitive components, complex of being formulated in their free format. Using the product promotes relief from muscular pain in general, and due to its natural characteristics and no toxicity, it allows the usage of Nano Relief several times a day.



### Features

**Aspect:** Milky liquid from beige to cream.

**Usage Concentration:** 2,0 a 10,0%

**pH stability:** 4,0 a 7,0

**Solubility:** Water Dispersible

**Particle:** Lipid

**Release Trigger:** Enzyme



### Benefits

- Relief from muscle pain, arthritis and rheumatism.
- After-sun use
- Relief from minor burns
- Improves blood microcirculation
- Regenerates skin



### Usage

Gels, gel-cream, emulsions and body sprays.

# Description

Nano Relief is a blend of essential oils of Sweet Birch (Betula Lenta) and Vetiver encapsulated in lipid multifunctional particles.

Sweet Birch (Betula Lenta) is a plant native to eastern North America, and has an average life of 150 years. From the plant's bark is extracted the essential oil, whose main component is methyl salicylate, a substance responsible for the regenerative property of this plant and its characteristic odor. Methyl salicylate is an ester with a chemical structure quite similar to aspirin. It is used as a flavoring agent and especially as anti-inflammatory and analgesic for several products<sup>(1)</sup>.

Vetiver is a plant of the grass family, also known as vetiver grass, native to the Indian subcontinent. The plant is used in these regions mainly for erosion control, from it is extracted a highly aromatic essential oil, used extensively in fine perfumery and cosmetic products. It's a great massage oil used in Ayurvedic medicine because of its stimulant and rubefacient properties, activating local blood circulation and providing relief from arthritis, rheumatism and muscle pain in general. Vetiver essential oil is also used as a tonic, detoxifying, repellent and antiseptic, and it helps fighting acne, as it promotes skin regeneration and strengthens tissues, aiding in the healing process. Its main constituents are vetiverol, terpenes and sesquiterpenoids<sup>(2)</sup>.

Nano Relief is indicated to support topical treatment for muscle pain, bruises, torticollis, neuralgia and rheumatism, as well as after sun-formulations and for the treatment of minor burns.

## Regulatory Information

INCI NAME	CAS NUMBER
AQUA	7732-18-5
BETULA LENTA BARK OIL	85251-66-7
VETIVERIA ZIZANOIDES ROOT OIL	8016-96-4
LINOLEIC ACID	60-33-3
OLEIC ACID	112-80-1
POLYSORBATE 80	9005-65-6
PPG-15 STEARYL ETHER	25231-21-4
STEARETH-2	9005-00-9
STEARETH-21	9005-00-9
PHENOXYETHANOL	122-99-6
CAPRYLYL GLYCOL	1117-86-8
BHT	128-37-0

## Physical-Chemical Information

PHYSICAL STATE	LIQUID
FORM	MILKY
COLOR	CREME TO BEIGE
ODOR	CHARACTERISTIC
pH	4.0 TO 6.0
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.

## Approved by International Regulations:



China - IECIC



Europe - EC Cosing



USA - CIR



Australia - AICS Inventor



Brazil - Anvisa



### STORAGE:

KEEP IN A WELL-VENTILATED PLACE, AWAY FROM LIGHT AND HEAT.



### INCOMPATIBILITY:

ETHANOL AND OTHER ORGANIC SOLVENTS.

## References

1 - GENNARO, A. R. Remington. Farmacia. 17. ed. Buenos Aires: Editorial Médica Panamericana, 1987, p. 1747, 2001-2012.

2 - COLE, B; et al. Triterpenoid Extractives in the Outer Bark of Betula lenta (Black Birch). Holzforschung - International Journal of the Biology, Chemistry, Physics and Technology of Wood , v. 45, n. 4, p. 265-268, 1991.

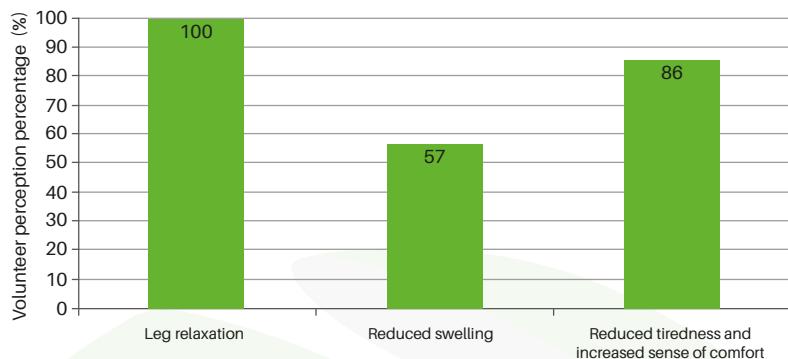
3 - CHOMCHALOW, N. The Utilization of Vetiver as Medicinal and Aromatic Plants with Special Reference to Thailand. Pacific Rim Vetiver Network, Office of the Royal Development Projects Board, Technical Bulletin, Bangkok, Thailand, September 2001.

4 - CHOMCHALOW, N.; CHAPMAN, K. Other Uses and Utilization of Vetiver - Reviewer. Disponível em: <[http://vetiver.com/ICV3-Proceedings/THAI\\_other%20uses.pdf](http://vetiver.com/ICV3-Proceedings/THAI_other%20uses.pdf)>. Acesso em: 10 jul. 2013.

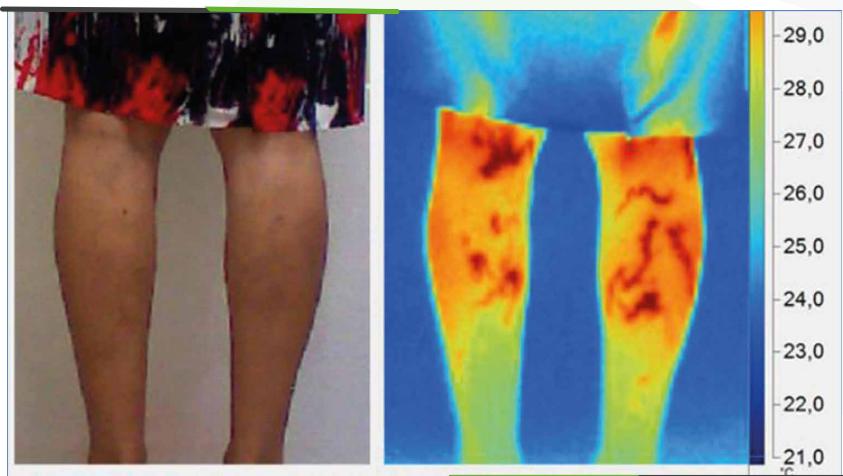
# Effectiveness Test

**Objective:** To evaluate the safety and efficacy of the product "Gel Cream with Nano Relief 10%".

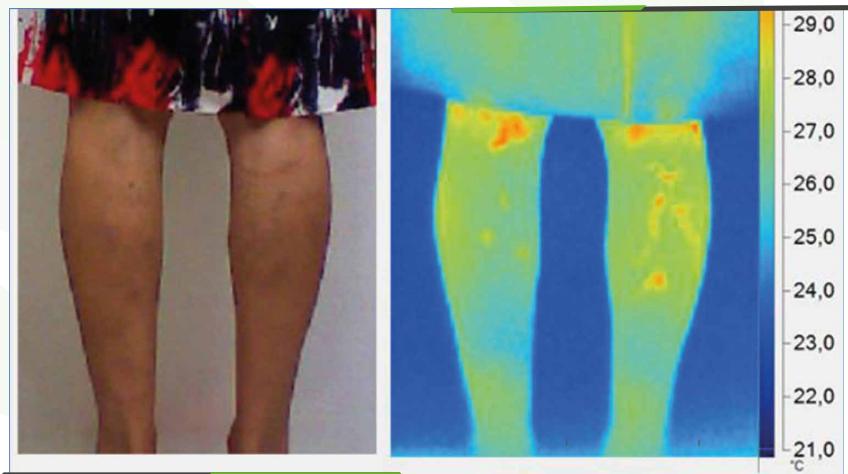
Sensory analysis by perceived clinical effectiveness



Initial



Final



In the initial image, it is possible to observe the heating, characteristic of skin areas with vascular changes (red areas are indicative of pain). After 1 hour of product application, an improvement of blood circulation was seen, as evidenced by decreased blood flow in the regions affected by varices. This is an indication that the product gives feeling of comfort by decreasing feelings of tiredness and pain caused by vascular changes.

**Conclusion:** The product did not induce irritative phenomena, being considered safe for topical use. Application of the Gel Cream with Nano Relief provided significant reduction in pain intensity in the legs of 100% of the study participants.

# Suggested Formula

## Gel Cream with Nano Relief 10%

### PHASE I %

EDTA-2Na.....	0,10
Glycerin.....	2,00
Water qsp.....	100,00

Technique: Solubilize and Reserve

### PHASE II %

Xanthana gum.....	0,10
Phase 1.....	qs

Technique: Disperse in 1/3 of phase 1

### PHASE III %

Pemulem TR1.....	0,30
Phase 1.....	qs

Technique: Disperse in 1/3 of phase 1

### PHASE IV %

Carbopol 940.....	0,40
Phase 1.....	qs

Technique: Disperse in 1/3 of phase 1

### PHASE V %

Cetostearyl alcohol.....	1,00
BHT.....	0,05
Glyceryl monostearate.....	3,00
Triglycerides of caprylic and capric acid.....	3,00

Technique: Heat to 80°C

### PHASE VI %

Preservative.....	qs
Fragrance.....	0,50
Nano Relief.....	10,00

Technique: Reserve to add each one separately

### FASE VII %

AMP qs pH=6,5 – 7,0.....	qs
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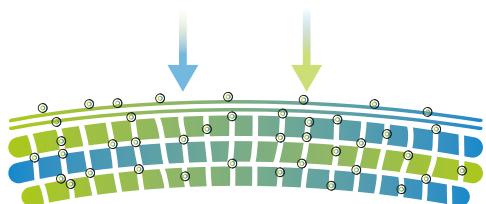
Technique: Reserve

- 1 - Mix phase 1, 2, 3 and 4 and heat to 80 °C
- 2 - Pour 5 over 1+2+3+4 and stir vigorously for 10 minutes at 80 °C
- 3 - Adjust pH=6.5 - 7.0 with phase 7
- 4 - Start cooling
- 5 - Below 40 °C add phase 6

## Usage Protocol

- 1 Apply enough to cover the desired area and wait full drying.

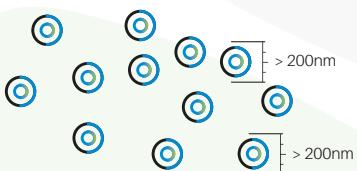
# Nanovetores Encapsulation Technology



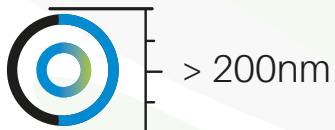
**Multifunctional Lipid Particles** that promote hydration and extended effect.



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



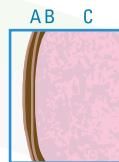
**Monodispersity**, that ensures control of the particle size, providing adequate permeation to its proposed action.



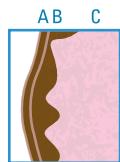
**Secure particles** larger than 200nm, biocompatible and biodegradable.



**Enzymatic Specific Release Trigger**, where enzymes present on the skin disintegrate particles, releasing the active ingredient specifically where it needs to act.

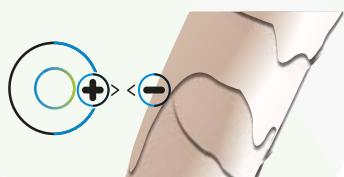


Active ingredient deposition when applied freely



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

Use of sensitive active ingredients (without refrigeration)

Increased compatibility in the formulation

Increased Solubility

Occlusion of odors

Prolonged release

Increased skin permeation

Increased effectiveness

Reduced dose