

NV REDENSIFIER



MULTI-FUNCTIONAL ACTIVE TO REDENSIFY SKIN AND HAIR

Active Ingredient: Hydrolyzed Pea Protein, Hyaluronic Acid, Comfrey Extrac and Onion Extract.

SKIN BENEFITS

- Redensifies the skin;
- Intensifies the cell renewal process;
- Antioxidant and anti-inflammatory properties;
- Supports UV protection;
- Improves the appearance of keloid scars;
- Deep hydration and increased softness;
- Improves skin elasticity and strength;
- Natural facial harmonization;
- Nose to mouth line filling;
- Tensor/Lifting effect;
- Increases skin volume and density.
- High in amino acids.

HAIR BENEFITS

- Redensifies the hair strands, restoring its mass;
- Restructures porous strands;
- Nourishes, repairs and strengthens the hair;
- Supports the treatment of Alopecia areata;
- Hair strands realignment;
- Frizz control;
- Increases hair volume;
- Color protection;
- Intensifies hydration and softness;
- Improves elasticity;
- Gives strength and resistance, protecting the strand;
- Improves appearance and brightness.

Application

Primer, creams, mask, serum, gel, leave-in products, shampoos, conditioners, hair masks, cationic gel and aqueous solutions.



Description

NV Redensifier is a blend of biofunctional active ingredients encapsulated in biopolymeric particles with a diameter greater than 200 nm. With particles high in amino acids of high hair and skin affinity, NV Redensifier consists of a protein capsule - Hydrolyzed Pea-, which contains the blend of Hyaluronic Acid, Comfrey and Onion Extract. The bioactives association from the NV Redensifier blend enhances skin and hair benefits delivery, while redensifies, repairs and nourishes from the inside out.

When applied on the hair, the NV Resensifier permeates the surface of the strand, restoring it and increasing its strength and elasticity, due to the great affinity with the hair fiber. The sustained release of the biofunctional actives on the hair stand improves its strength and resistance, increasing hair volume and combating dryness. These active ingredients act synergistically increasing the diameter and resistance of the strands, leaving them with more volume, and shiny, in addition to restructuring the porous

strand, filling in the lost capillary mass and eliminating frizz. When thermoactivated, NV Redensifier is broken up and forms a protective barrier on the strands.

On the skin, the benefits of using NV Redensifier are visible, with global action, it rebalances a series of physiological modifications related to the aging process. With the enzymatic trigger, it promotes the sustained release of actives ingredients, which stimulate essential elements of cutaneous cell division, increasing skin density and volume. It thus promotes a natural facial harmonization as an alternative to invasive aesthetic procedures. It intensifies the cycle of cellular repair and hydration, promotes deep hydration, and besides this, its anti-inflammatory and antioxidant activities exert protection effect against solar radiation and pollution. NV Redensifier presents itself as a multifunctional active compatible with several skin and hair cosmetic applications.



Hydrolyzed Pea Protein

The pea protein is derived from the plant *Pisum sativum*, a high-fiber, low-fat legume with an extraordinary amino acid profile, especially high in lysine, a key amino acid in the collagen and carnitine synthesis¹. Recently, several peptides and proteins have been developed to accelerate and facilitate the delivery of bioactive molecules in the skin, hydrolyzed proteins rich in arginine, have remarkable effects on permeation. Natural bioactive peptides when applied topically can contribute to reverse the signs of aging and photodamage of the skin and hair². They play a significant role anti-aging cosmetics, with remarkable dermal redensification, increased synthesis of collagen and elastin, glycosaminoglycans, proteoglycan and fibronectin, with apparent improvement in healing processes³.

Considered the new source of beauty, proteins, thanks to their natural affinity with keratin present in the skin and hair, represent the perfect building block in the formulation of soft and biodegradable multifunctional cosmetic products. The pea hydrolyzed protein binds to the surfaces forming a highly hydrated layer, which hinders the diffusion and evaporation of water, maintaining hydration (Figure 1). Hydrolysed pea protein is an excellent source of planet-derived amino acids as can be seen in Figure 2. It is not derived from genetically modified organisms (GMOs), gluten-free, generating a "safer perception" for end consumers⁴.

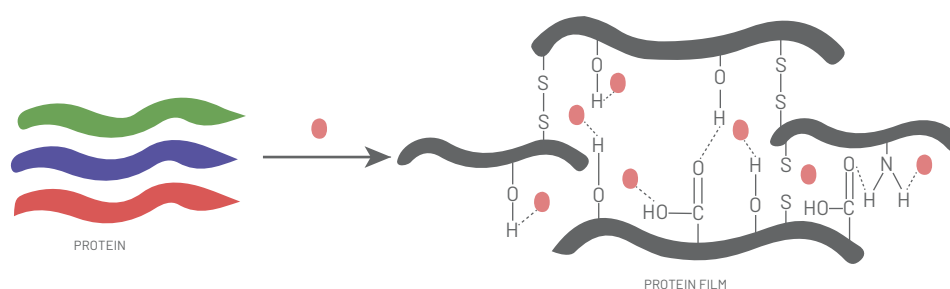


Figure 1: Protein film formation characteristic of pea protein (Adapted⁵)

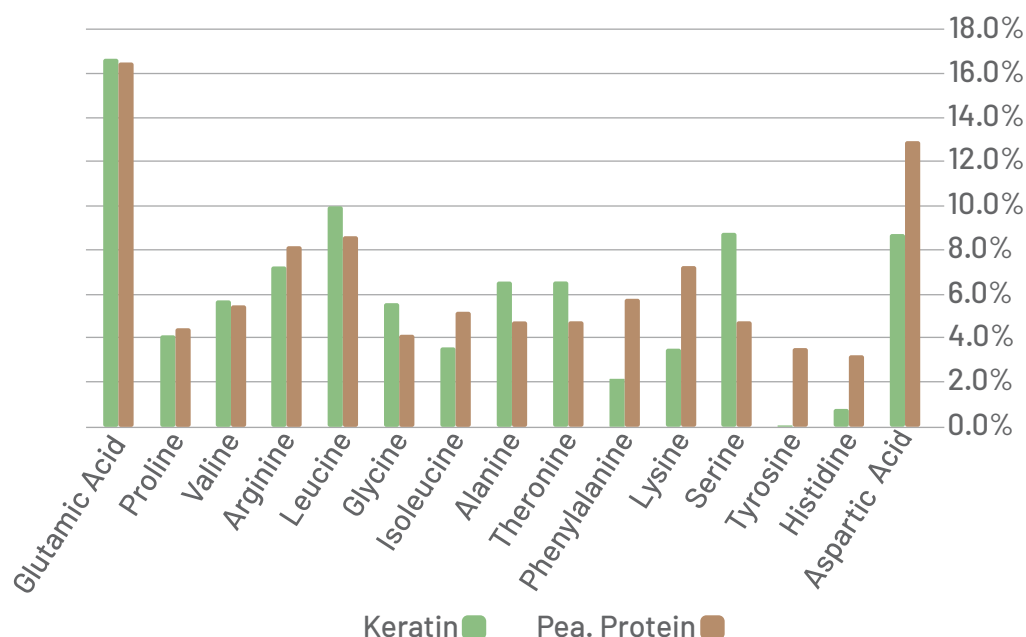


Figure 2 - Comparison of the keratin and pea protein amino acids profile^{5,25}.

Comfrey Extract

Comfrey, scientific name *Symphytum officinale*, of the family of Boraginaceae, a medicinal herb widely used in traditional medicine since antiquity, originated in Asia and present in Central-Northern Europe⁶.

The constituents of the comfrey include: Allantoin, abundant mucilaginous polysaccharides, phenolic acids such as rosmarinic acid, chlorogenic acid, glycopeptides, amino acids, triterpene saponins, pyrrolizidine alkaloids, vitamins A and B12, calcium, potassium and phosphorus⁷. Its benefits are based on its anti-inflammatory, healing, antioxidant, moisturizing and cell regeneration effects, being allantoin and rosmarinic acid the main agents involved in these mechanisms⁸. The anti-inflammatory properties attributed to Comfrey are measured by the rosmarinic acid, that is also responsible for the analgesic and astringent effects of the plant. Its mechanism of action may be related to the inhibition of arachidonic acid metabolism, and effects on the classical and alternative complement activation pathway. In addition⁹, rosmarinic acid has hair and skin protective effect, due to its excellent antioxidant activity, recovering the tissues^{10, 11}.

The benefits of skin and hair redensification are partially considered to be based on allantoin, which is responsible for stimulating the proliferation and regeneration of connective tissue, with an increase in the number of collagen fibers and fibroblasts¹². With emollient properties, it grants capillary and cutaneous dryness prevention benefits, helping to improve the texture of tissues making them softer and healthier.



Hyaluronic Acid

Hyaluronic acid is a polysaccharide composed of disaccharide units of D-glucuronic acid (GlcUA) and N-acetylglycosamine (GlcNAc) joined alternately by β -1.3 and β -1.4 glycosidic bonds. Found in the extracellular matrix of the skin, it keeps alive the collagen fibers responsible for the support, hydration and elasticity. As we age the production of hyaluronic acid gradually decreases, a complex and continuous biological process that is characterized by cellular and molecular changes¹³.

Hyaluronic acid is a high molecular weight polymer (1200 kDa), soluble in water, considered unable to penetrate the skin by passive diffusion. This characteristic of the active can be improved with its encapsulation in particles,

which act as a facilitator of transcellular penetration into the skin as a result of a stronger interaction with biological membranes¹⁴. When applied topically, hyaluronic acid nanoparticles form an intense bond with water, thus promoting skin hydration, and contributing to the restoration of the facial volume. These results can be perceived with the decrease of expression lines and wrinkles, making the skin smoother, firmer and rejuvenated. In capillary applications, it penetrates the fiber filling and intensely moisturizing the strands, making them brighter and healthier, also being effective for frizz reduction, color maintenance and decreasing scalp irritation¹⁵.

Onion Extract

The *Allium Strain L.*, commonly known as onion, is a member of the family *Liliaceae*, and among its phytochemicals, we can highlight the flavonoids, saponins (ceposideos), fructans, vitamins B1, B2, B6, C and E, biotin and organosulfurized compounds, considered important actives for their antioxidant, anti-inflammatory and antimicrobial activity. The onion extract *Allium Strain L.*, in fact, is known to contain a large amount of flavonols, most of which are glucose derivatives of Quercetin and Kampferol, powerful antioxidants. These actives have very diverse biochemical functions: they intervene in immune function, enzymatic activities, platelet aggregation and collagen, phospholipid and histamine metabolism¹⁶.

Onion bulbs contain fructose, water soluble carbohydrates, glucose, sucrose, fructooligosaccharides (FOS) and fructans constituting 60-80% of dry weight. FOS are not only energy reserves, but also act as osmorregulators capable of retaining large amounts of water, maintaining hydration and balance of the skin barrier and hair^{17, 18}.

The great affinity of onion extract for hair and skin can be explained by the presence of the groups -S- (O) -S- of the Thiosulphines, which interact with the HS groups present in cysteine, a component of beta-keratin found abundantly in these tissues¹⁹. The Tiosulfinates and ceapenes represent the active constituents with antimicrobial and anti-inflammatory activity present in onion extracts²⁰. Studies have shown that onion extract has a therapeutic effect on alopecia areata, this activity can be attributed to stimulating hair growth through antigenic competition, reducing inflammatory cytokines in the hair follicle²¹. The extract has also been shown to be effective in improving the appearance of hypertrophic scars, known as keloids, characterized by excessive proliferation of dermal tissue after long periods and persistent inflammation and fibrosis²². The anti-inflammatory and antioxidant properties of onion extract makes it an excellent ally in protecting skin and hair against UV rays and pollution, promoting tissue regeneration^{23, 24}.



Effectiveness Test

Perceived efficacy of SERUM WITH NV REDENSIFIER 5%, after 15 days of product normal conditions of usage.

Evaluated product: SERUM WITH NV REDENSIFIER 5%.

Number of volunteers: 31 Participants.

Hair

77%	noticed visible results right after the product application;	81%	noticed the hair more hydrated;
81%	noticed the strands more full-bodied;	74%	perceived that the strands are more recovered;
77%	perceived the strands stronger;	74%	perceived that it reduced opacity and dryness;
77%	noticed improvement in capillary elasticity;	74%	noticed improved brightness;
74%	noticed strands realignment;	74%	perceived that the strands are more resistant;
81%	noticed frizz reduction;	81%	liked and would buy the product.

Facial

77%	perceived the facial contour redefined and firm;	81%	noticed the reduction of the fine wrinkles;
77%	perceived that the use standardized the imperfections/reliefs on the skin;	74%	noticed the reduction of deep wrinkles;
81%	thought it improved hydration;	77%	perceived that they filled the deepest lines of expression;
74%	felt the skin with more elasticity;	74%	perceived harmonization of facial volume;
81%	felt their skin healthier;	74%	perceived the visible results soon after product application;
81%	felt the skin softer;	81%	perceived that the use recovered the facial contour;

Informações Regulatórias

Nome INCI	Número Cas	Número EINECS
AQUA	7732-18-5	231-791-2
GLYCERIN	56-81-5	200-289-5
HYDROLYZED PEA PROTEIN	222400-29-5	-
SODIUM BENZOATE	532-32-1	208-534-8
POTASSIUM SORBATE	24634-61-5	246-376-1
SYMPHYTUM OFFICINALE LEAF EXTRACT	84696-05-9	283-625-3
ALLIUM CEPA BULB EXTRACT	8054-39-5	232-498-2
SODIUM HYALURONATE	9067-32-7	-

Informações Físico-Químicas

Aspect	Liquid
Color	Amber to brown
Odor	Characteristic
Density	0.9 to 1.1 g/mL
pH	5.0 to 7.0
Dispersibility	Dispersion of encapsulated active ingredients in water



How to Use

Add to the formulation below 40°C under moderate agitation.

Concentration of Use

2 to 5%

Stability pH

4.5 to 12

Storage

Keep in a well-ventilated place, away from light and heat.

Compatibility

Non-ionic, cationic and anionic bases.

Incompatibility

Ethanol.





Our production process is based on Green Chemistry, being water-based and free of organic solvents, totally sustainable. We do not generate waste that could be harmful to users or the environment



We do not test on animals. All tests are conducted in trustworthy laboratories with human volunteers.



Essential oils, Vitamins, Acids and Natural Extracts are highly oxidative substances that degrade quickly and react constantly with the medium and other cosmetic compounds (light, oxygen, packaging, preservatives, fragrances, surfactants, etc.). By encapsulating it, we guarantee the stability of the active ingredients and protect them from potential reactions with the formulation or the environment.

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Nanovetores Encapsulation Technology



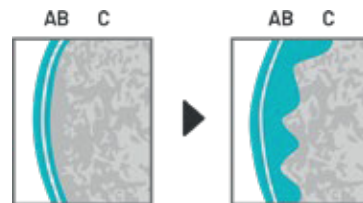
Active Ingredient Protection against oxidation resulted from interaction with external environment and other components of the cosmetic formulation.



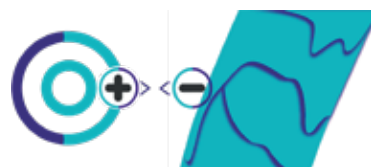
Monodispersity, that ensures control of the particle size, providing adequate permeation to its proposed action.



Secure particles larger than 200nm, bio-compatible and biodegradable.



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



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