

POLY-HELIXAN

INCI Denomination:

Snail secretion filtrate

References in cosmetic products:

Poly-Helixan is a powerful active ingredient, **natural and ecological**, extracted from a defensive liquid secreted by a mollusc (snails).

It is known that already in the sixteenth century, Ambroise Paré, a surgeon of the French Kings and recognized to be the father of modern surgery, recommended snail secretion to treat the stretch marks after pregnancy.

In the twentieth century, 2 different paths lead to the consideration of the snail secretion as a promising active ingredient for cosmetics:

- In 1961, Doctor Abad Iglesias, a clinical oncologist from Madrid, studying the alterations of the radiotherapy treatments on patients, discovers that after applying X and gamma rays to a snail, it secreted a substance which helped it to heal the damages produced on its skin. Dr. Abad made studies during 10 years before applying the substance at a human. Some years after, the Russian government called him to treat burned victims of the Chernobyl accident, with an important success.
- In 1981 the owner of a farm in Chile, dedicated to grow snails, saw that the hands of his son were getting an unusual smoothness and there was a quick cicatrization of his small wounds made while manipulating the cages. After 9 years of studies, the first cosmetic cream with snail secretion was launched at the beginning of the 90s.

These discoveries prompted studies to find out how the snail secretion could help skins damaged by acne, injuries, stretch marks, pollution or photo-aging. There are already several cosmetic products using this component in Europe and the United States with high success.

During the last years, a number of articles regarding the benefits of the snail slime have been published in fields like bone healing, lubricants or glues.

Description:

Snail characteristics

Helix aspersa (common garden snail) mollusc gastropod lugged helicoid, whose body is protected by a calcareous corneous shell and whose locomotion means is ventral. It has four nervous systems in four retractile tentacles that come out of the end of its head; these extensions serve as sensory functions.



This snail, has survived for over 600 million years to many different kinds of extreme environmental conditions, thanks to a secretion which defends its body and helps at its quick skin healing.

The sense of touch is very well developed, considering that it relates itself with the world through it: it looks for its food, it detects humid conditions and optimal temperatures, it

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backs away from dangers and it stays alert around the changes in its environment.

They produce a substance that, depending on its concentration can be differentiated in:

- **Mucous (slime)** to help in the locomotion, reducing friction. It is mainly water and has no biologic activity. Its only function is to allow the mobility of the animal.

- **Defence secretion:** Rich complex which helps the animal to rapidly repair any damage to its skin. It contributes to their thermal regulation and to the constant hydration of the animal. It also reduces the risk against injuries to the snail external aggressions, mainly by bacteria and fungi, helping them to stay away from potentially harmful insects. This secretion also enters in the composition of the cover. When the snail retracts in its shell, for hibernation, this special secretion gets polymerized, in order to cover the entrance of its shell with a structure called opercula.

This secretion repairs the skin of the snail when it is injured by other animals. It also helps it to survive at a full of oxygen-radicals surrounding atmosphere when hibernating.

The snail shell and the egg covers are mainly composed of carbonate calcium. Because of this, it requires a great amount of calcium in its diet and an aqueous environment in order to produce a strong shell.

It is this concentrated secretion the one interesting as active ingredients for cosmetic products, and the one subjects to the studies mentioned above. It is a complete and balanced solution for skin care products, created by a living creature to protect, restore, renew and hydrate its own skin.

Extraction and elaboration method

To obtain **Poly-Helixan**, the snail is raised in a completely natural environment, by a mixed method inside pots.



Before undergoing the extraction process, the animal is carefully selected through a standardized process that takes into account the average weight, as well as size and the colouring of the meat and its mucus.

The snail mucus extraction process is carried out after submitting the gastropods to extreme stress conditions for a period of time and afterwards they are stimulated so that they carry out the secretion. After the secretion extraction, the snail is returned healthy to its breeding place. By this way, the secreted emission, which is

different to the one it uses to move, is much more enriched in regenerating substances and antioxidants.

Once the snail secretion from the first ejection is obtained, the snail is purged and cleaned with distilled water. This secretion is filtered with a pressing filter and treated.

From this secretion collected, we prepare **Poly-Helixan**, with high concentration of proteins and actives:

From the first ejection, the product is then filtrated and undergoes through an standardization process of its microbiological constants

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Before adding the preservatives, the product goes through a process of vacuum evaporation. With it, we duplicate the concentration of the original secretion by taking out 50% of the water contained within. After this, the preservative system is added. It has then a shelf life of 8 months.

Use in Cosmetic products:

The actions of **Poly-Helixan** are achieved thanks to its components:

- **Allantoin:** Natural substance with high capacity to stimulate the cellular proliferation and tissue reconstruction. It also can help to decrease dandruff scales thanks to its keratolytic action. It has a good capacity to penetrate in the skin.
- **Proteins:** Snail Secretion has proteins which composition is quite similar to the ones found in the skin. They contribute to the skin nutrition and to its smoothness, good texture and luminosity.
- **Vitamins:** Mainly vitamin A, C and E. It has anti-oxidant and anti-inflammatory properties. It also can help to reduce skin spots. At last, they can stimulate the collagen synthesis by fibroblasts.
- **Alpha-Hydroxy-Acids:** They are well known for its exfoliating action, helping at the renewal of the old and dead cells of the upper layers of the skin. Thanks to this the skin has better luminosity and is renovated.
- **Mucopolysaccharides:** They provide an excellent hydration and protect the skin against external aggressions
- **Proteolytic Enzymes:** They help at the protease/anti-protease balance in the skin, which are in charge of promoting the production and degrading collagen and elastin. These fibres are the responsible of the firmness and elasticity of the skin.
- **Collagen & Elastin:** Main fibres of the epidermis.

The **skin care activities** of Poly-Helixan are:

- Removes dead and denaturated skin cells. Exfoliating action that encourages the formation of new skin.
- Antiseptic: Helps to prevent from skin infections protecting from certain strains from bacteria
- Promotes the synthesis of collagen and elastin
- Antioxidant: protection against free radical damages
- Increase skin elasticity
- Anti-inflammatory: Help to reduce inflammatory skin effects
- Moisturizer: Provides moisture to the skin from the inside, as promotes the proliferation of Glycosaminoglycans

Thanks to the rich composition of the secretion, **Poly-Helixan** can be used in cosmetic formulations with the following benefits:

- Delay premature aging of the skin
- Helps cicatrization. It also assists in diminish keloids and stretch marks
- Fights against flaccidity and decreases cellulite problems
- Anti free radical
- Regenerates damaged tissues
- Decreases skin spots

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- Improves significantly acne situations, helping to avoid bacteria growth
- Reduces inflammations in skin
- Improves the relieve of burns. Indicated for after sun exposures
- Skin moisturizer

Cosmetic applications:

Poly-Helixan can be used at cosmetic preparations for face treatment, as well as neck and hands products. It is highly recommended for sensible areas after suffering a damage produced by sun irradiation. It is also excellent for anti-acne formulations.

It is recommended for the following product lines:

1. **Anti-aging:** Creams and gels. It supplies nutrients and regenerates the skin's elasticity. It helps the supply of new cells exfoliating the old ones. The skin is more luminous, smoother and with less wrinkles
2. **After-sun, aftershave, and after depilation:** Skin that has suffered a strong aggression is regenerated faster. It helps the restoring actions of the skin cells
3. **Baby products:** Indicated for formulations to treat irritated areas of the babies. It helps avoiding new irritations and repairs the already produced.
4. **Anti-acne treatments:** It works destroying the bacteria which causes acne. It contains glycolic acid and regenerating elements which will help at the cicatrisation.
5. **Anti skin spots:** Its concentration in alpha-hydroxy-acids will accelerate the exfoliating process, decreasing the dark spots created at aged skins. Its content in Vitamin C will also help in the reduction of excess melanin
6. **Pregnancy and post pregnancy formulations:** The skin at pregnant women suffers intense hormone changes and a quick and intense stretch to hold the new creature. These effects can be decreased with a good moisturization and daily nutrition. The Snail Secretion will help to maintain the skin's elasticity, preventing from stretch-marks formation. It will also relieve the already existing ones

Dosage – Solubility – Processing

A- DOSAGE:

The recommended dosage is from 2 – 5%

B- SOLUBILITY:

Hydro soluble. Soluble with tensio-actives and alcohol mixtures

C- PROCESSING:

Poly-Helixan can be incorporated at the end of the cosmetic formulation.

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Analytical Data

- Aspect: Yellow to ochre liquid, with characteristic odor
 - pH: 5 – 8
 - Density (at 20 °C): 1,001 – 1,005
 - Refraction index (at 20°C): 1,330 – 1,335
 - Total proteins: 4,00 – 8,20 mg/ml
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- TOLERANCE: Very good. Tested under dermatological control
 - STORAGE: Store at original package **refrigerated (4 to 8 °C)**, away from light and dry
 - Shelf-life: 12 months

Bibliography and studies

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