



BioRePeelCl3

BIPHASIC TECHNOLOGY

BioRePeelCl3 is an innovative, biphasic medical device with biostimulating, revitalizing and peeling action.

The biphasic technology and innovative mix of active principles inside let the CMed Aesthetics deposit the patent.

The product shows up with a lipophilic blue phase on a hydrophilic yellow phase.

Lipophilic phase:

The lipophilic phase (BLU) floats on the hydrophilic one (YELLOW) and prevents the oxidation of the trichloroacetic acid, mechanically separating from the contact with the oxygen, thus stabilizing the formulation. It also performs this action on other acid and dermofunctional active ingredients, improving performance and ensuring product safety.

Moreover thanks to the active contents (Squalane and Isopropyl myristate) it also carries out:

- **FILMING AND VEHICULATING ACTIONS** It reduces trans-epidermic water evaporation and assists active principles vehiculation.
- **REGENERATING ACTION** It restores and maintains cutaneous hydro-lipidic film.
- **MOISTURIZING ACTION** It increases hydration through direct and indirect mechanism.

Hydrophilic phase:

The hydrophilic phase (YELLOW) contains an innovative mix of TCA, alpha, beta and poly hydroxy acids, amino acids and vitamins.

The acids, amino acids and vitamins contained in BioRePeelCl3 are:

- **TCA** *Trichloroacetic acid*
- **Poly-hydroxy acids:** *Lactobionic acid*
- **Beta-hydroxy acids:** *Salicylic acid*
- **Alpha-hydroxy acids:** *Tartaric acid, citric acid*
- **Aminoacids:** *Glycine, Proline, Hydroxyproline, Arginine*
- **Vitamins:** *C and B2*
- **Lifting agent:** *GABA (aminobutyric acid)*

Mechanism of action:

Once the TCA is in contact with the skin, it activates the process of denaturation of the proteins of the outermost horny layer and activates the SSRS (SkinStressResponseSystem) in response to acid stress. SSRS via a biochemical cascade leads to the production of tissue growth factors such as:

- **PDGF:** Growth factor derived from platelets, has a stimulating action on the proliferation of fibroblasts and tissue regeneration;
- **ALPHA AND BETA 1 TGF:** Alpha TGF produced by fibroblasts and keratinocytes induces cell proliferation and differentiation. TGF BETA 1 is a peptide that participates in tissue regeneration and cell differentiation;
- **VEGF:** Growth factor of vascular endothelium, improve formation of new vessels and capillaries and help the dermis to be more oxygenated.

The TCA in synergy with the other acids also has an exfoliating and keratolytic action

- **Lactobionic acid:** This product is made of a molecule of gluconic acid, a poly-hydroxyacid, linked to a carbohydrate, galactose. It is an effective epidermal antiageing molecule and stimulates dermal matrix polymer synthesis and dermal synthesis.

It has great moisturizing properties thanks to the structural -OH groups.

It reduces cutaneous Metalloproteinases (MMPs) production, protecting the skin from chronoageing and photoageing.

Galactose is an endogen carbohydrate that is used by fibroblasts to synthesize glycosaminoglycans and collagen.

- **Salicylic acid:** It is a beta-hydroxyacids and powerful keratolytic, that selectively cuts keratin aminoacidic chain of corneocytes.

It doesn't affect the other dermal proteins, so it exerts the exfoliating action only on dermal protein, making this active principle well tolerated by cells below, void of keratin.

It has bacteriostatic and lenitive actions, frees the enlarged pores from the sebaceous content, creating an unfavorable environment for bacterial growth and thus reducing the possibility of formation of acne lesions.

- **Tartaric acid:** It is a dicarboxylic acid and a powerful antioxidant molecule, famous for its lightening and exfoliating properties.

It is used for the keratolytic action, it reduce corneocytes adesion. It is effective to treat dry, inelastic skin, acne and blackheads.

- **Citric acid:** It is a tricarboxylic acid, with chelating properties for bivalent ions like Ca²⁺; this is a reason why the acid has antioxidant action.

The hydroxyl group in alfa position of carboxylic group gives exfoliating and keratolytic properties. It also has regenerating and astringent effects for enlarged pores.

The keratolitic action is carried out with high efficacy by Salicylic, Tartaric and Citric that, thanks to their molecular structure, selectively break the amino acid chain that acts as a junction between the corneocytes.

They have no effect on other dermal proteins, so the exfoliating action only affects the corneal cells.

This favors the penetration of the pool of active principles:

➤ **AMINOACIDS:**

- **Glycine:** Glycine is the most abundant aminoacid in collagen (35%). It has moisturizing, antioxidant and regenerating properties.

- **Proline:** Basic aminoacid in collagen synthesis and support. It has elasticizing properties so it is indicated for inelastic and aged skin.
- **Hydroxyproline:** Hydroxyproline is widely present in collagen. It increases and support ceramides synthesis, activating keratinocytes proliferation and fibroblasts' collagen production.
- **Arginine:** Arginine is a basic aminoacid with moisturizing and trophic functions for the skin. It is involved in blood flow regulation processes.
It helps regulating biochemical processes like protein and macromolecule synthesis as collagen, elastin and keratin. Indicated for inelastic skin.
It is a biochemical modulator of trichloroacetic acid and the fundamental substrate for NO production.
It promotes angiogenesis, cutaneous reepithelialization and tissue growth factors production.

➤ **VITAMINS:**

- **Vitamin C:** Essential cofactor in collagen synthesis. It is the main cellular antioxidant molecule. It protects from ROS (Reactive Oxygen Species) and regenerate other antioxidant molecules.
- **Vitamin B2:** Riboflavin, also known as Vitamin B2, is an hydrophilic vitamin, necessary for normal skin tropism.
It is FAD and FMN precursor, so it is involved in huge number of metabolic reaction, as the activation of other vitamins.
It helps removing ROS due to cutaneous oxidative stress and it can accelerate cell growth and regeneration.
The deficiency generates a functional alteration of the skin with a fine-grained and greasy skin.

➤ **LIFTING AGENT:**

- **GABA:** gamma-aminobutyric acid is a non essential aminoacid and the chief inhibitory neurotransmitter in the mammalian central nervous system.
It promotes collagen synthesis thanks to inhibition of cutaneous Metalloproteinases (MMPs), cutaneous proteins degradation enzymes¹.
The GABA effect is cutaneous tissue distension thanks to nerve relaxation and consequent relaxation of the muscles responsible of wrinkling. The result is an effective anti-wrinkle action.

Finally, the lipophilic phase create a microfilm on the skin that regenerate and moisturizes the skin, but it is also an enhancer that helps the deep vehiculation of active principles.