

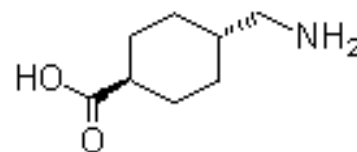
ACIDS FOR COSMETICS



- TRANEXAMIC ACID
- KOJIC ACID
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- RETINOIC ACID
- OXOTHIAZOLIDINECARBOXYLIC ACID
- CAFFEIC ACID
- POLYGLUTAMIC ACID

TRANEXAMIC ACID

INCI Name: Tranexamic acid
CAS No.: 1197-18-8
EINECS: 214-818-2



TRANEXAMIC ACID - PROPERTIES

Anti-stain

Treatment for melasma Lighten skin.

Tranexamic acid provides bleaching and prevents pigmentation. It inhibits melanin and improves skin roughness. This product also helps to restore damaged skin caused by UVA /UVB rays, pollution or other environmental factors.

Tranexamic acid is suitable for all types of skins to eliminate pigmentation and whiten skin such as:

- Pigmentation after sun exposure. - Dark spots
- Sensitive skin
- Acne and inflammation.

Postoperative care after laser treatment, pulsed light.

TRANEXAMIC ACID - USES

Applications in cosmetics:

- Whitening skin lotions, creams, body milk, scalp care cosmetics.

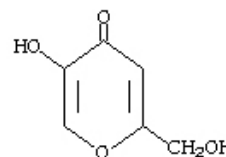
Usage Level:

- China: 2%
- Japan: 1.5-2%
- Thailand: 7%

The most famous example where tranexamic acid has been used, is the whitening series in the Shiseidos brand: NAVISION IP Essence (TA), NAVISION TA Lotion, NAVISION TA Essence and Melanoreduce EX.

KOJIC ACID

Product Name: Kojic acid
INCI Name: Kojic Acid
CAS No.: 501-30-4
EINECS: 207-922-4



KOJIC ACID - PROPERTIES

Kojic Acid acts on melanocytes, inhibiting the synthesis of melanin by blocking the transformation of L-TYROSINE, the amino acid precursor to Melanin.

Its powerful bleaching action is completed with a moderate antibiotic effect.

Recommended percentage of dose: 1 to 5% of the total.

Solubility: Kojic acid is soluble in cold water, hot water, methanol, acetone and dissolves slightly in ether, ethyl acetate, chloroform and pyridine, but does not dissolve in benzene.

KOJIC ACID - USES

Kojic acid is used as a bleaching and skin lightening agent in cosmetics and bath lotions, and in aseptic foods, fat and food antioxidants, anti-descaling agents for fruits and vegetables. Kojic acid can also be used in synthetic antibiotic intermediates, agricultural plant protection and chemical reagents, etc.

Dose of use in cosmetics: 0.5 ~ 2.0%.

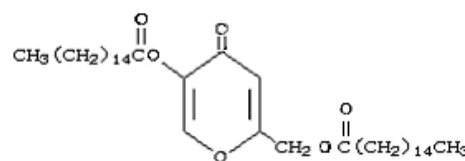
Kojic acid dissolves in water at less than 50 °C.

KOJIC ACID DIPALMITATE

Product Name: Kojic Acid Dipalmitate

INCI Name: Kojic Acid Dipalmitate

CAS No.: 79725-98-7



KOJIC ACID DIPALMITATE - PROPERTIES

It has an excellent property of inhibiting the activity of tyrosinase present in human skin in order to repress the formation of melanin. It is more effective than pure Kojic Acid.

Kojic Acid Dipalmitate may have excellent effects, even in the skin toning, the fight against blemishes, pregnancy marks, freckles, as well as general disorders of the pigmentation of the skin of the face and body.

Kojic dipalmitate is applied to cosmetics. It is a derivative of modified kojic acid, which not only overcomes instability in light, heat and metal ions, but also maintains tyrosinase inhibitory activity and prevents the formation of melanin. As a fat-soluble skin whitening agent, it is easier to be absorbed through the skin.

Solubility: Kojic acid dipalmitate is oil soluble.

KOJIC ACID DIPALMITATE - USES

This product is used as a skin lightening agent in cosmetics, especially in advanced cosmetics that have the function of lightening the skin, sun protection and dissipating freckles.

Usage dose: 1.0 ~ 5.0%

KAD is difficult to incorporate into the formulation and easily precipitates as crystals. To solve this problem, it is suggested to add isopropyl palmitate or isopropyl myristate to the oil phase, and heat the oil phase to 80 °C and keep at this temperature for approximately 5 minutes for KAD to dissolve completely, then add the phase of oil to an aqueous phase for emulsification at the same temperature for approximately 10 minutes. Usually, the pH in the final product is around 5.0 - 8.0.

FERULIC ACID

INCI Name: Ferulic Acid
CAS-No. 1135-24-6

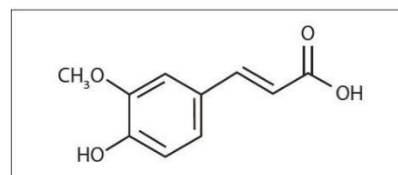


Figure 1. The chemical structure of ferulic acid.

FERULIC ACID - PROPERTIES

It is an antioxidant that neutralizes free radicals and helps to prevent damage to cells caused by ultraviolet light.

The exposure to ultraviolet light increases the antioxidant potency of ferulic acid. Ferulic acid is often added as an ingredient in anti-aging supplements.

Ferulic acid contains an oxygen-hydrogen phenolic group capable of acting as a hydrogen donor for free radicals.

- Appearance: White to yellow crystalline powder
- Solubility: freely soluble in ethanol and slightly soluble in hot water.
- Stability: This product is stable and has a good performance, without fading in the shelf life.

FERULIC ACID - USES

Ferulic acid is a natural antioxidant that effectively eliminates free radicals. Photoprotector, reducing the damage caused by UV rays; Results show that ferulic acid in combination with vitamins C and E improves photo-damage.

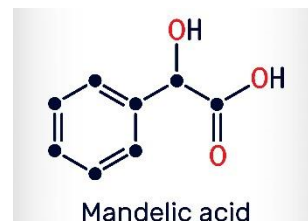
Increases firmness and replenishes lipids to reduce wrinkles; Inhibits tyrosinase activity and melanin content, whitens the skin, effectively removes age spots and sunspots;

Its uses in cosmetics are detailed below:

- Anti-aging products anti-oxidation
- UV absorber product (sun screens)
- Bleaching agent
- Hair wax
- Creams and lotions for skin, soaps, etc.

MANDELIC ACID

INCI Name: Mandelic acid
CAS No.: 90-64-2
EINECS: 202-007-6



MANDELIC ACID - PROPERTIES

Mandelic acid has numerous applications in the cosmetic industry, being of special interest in the treatment of skin imperfections such as acne or hyperpigmentation.

It has an anti-aging activity, since it reduces the depth of wrinkles and, therefore, gives the skin a more youthful appearance. It has a moisturizing and exfoliative activity, which favors the removal of the superficial layers of keratinocytes of the epidermis, which in turn activates the regeneration of said epithelium.

In addition to an important skin repair, it has antibiotic and depigmenting properties as it inhibits the growth of melanin. And like the rest of AHA, it eliminates dead cells, improves cell regeneration and the appearance of small expression lines, and also stimulates the production of collagen.

This acid is much less irritating than glycolic acid, since its molecular weight is greater, and therefore it is absorbed more slowly and causes less irritation. Therefore, this acid is highly recommended for rosacea and sensitive skin. Being an antibactericidal acid makes it ideal for skin with acne problems.

MANDELIC ACID- USES

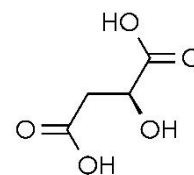
Whether to treat acne, melasma, expression lines or to prevent wrinkles, there are several beauty products that include mandelic acid among its ingredients.

These are some examples:

- Lipsticks: Mandelic acid is used to correct and fill the cracks of the lips.
- Creams: It is included in various anti-aging creams to prevent the effects of the passage of time on the skin.
- Gel: Whether for facial or body use, mandelic acid is used to control oily skin, improving with its astringent properties the undesirable acne breakouts and blackheads.
- Serum luminosity: There are also products helps to correct skin blemishes. Kits for peeling.

MALIC ACID

INCI Name: Malic acid
CAS No.: 6915.15.7



L-malic acid

MALIC ACID - PROPERTIES

Malic acid is a kind of fruit acid, which exists in the pulp of the green and bitter apple. It can accelerate the shedding of glial cells, soften the skin corneum, increase the skin's collagen and effectively improve the dry skin. It can reduce wrinkles, make the skin white, soft and clean.

The pH is an important quality indicator for cosmetics. If the pH is too high or too low, it will irritate the skin and cause direct damage to the body. DL-malic acid can be used as an acidity regulator in cosmetics.

MALIC ACID - USES

When applied to the skin, it closes the pores, increases the smoothness of the skin and limits the signs of wrinkles or expression lines.

It is a common ingredient in many hair and skin care products that include:

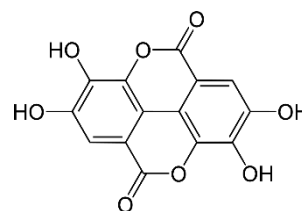
- 🌿 Shampoos
- 🌿 Body lotions
- 🌿 Nail treatments
- 🌿 Acne and anti-aging products

Stimulates exfoliation by interfering with how skin cells bind. As a result, damaged skin is removed to give way to new skin.

Malic acid is also a humectant. It helps with moisture retention to keep your skin hydrated.

ELLAGIC ACID

INCI Name: Ellagic Acid
CAS-No. 476-66-4



ELLAGIC ACID PROPERTIES

Ellagic Acid is composed of polyphenols molecules. If used in the whitening of skin, Ellagic acid can inhibit tyrosinase activity and block the melanin. In addition, it can effectively protect skin from the outside damage and suppress the melanin formation, having an antioxidant effect. This product appears as a slight yellow powder.

- 🌿 **Appearance:** white to pale yellow powder.
- 🌿 **Solubility:** slightly soluble in water, alcohol, soluble in alkali, pyridine and dimethylsulfoxide, insoluble in ether.
- 🌿 **Melting point:** > 360
- 🌿 **Characteristics:** color changes when sulfuric acid is found, reaction with ferric blue, easily combined with metal ions of copper, calcium and magnesium.

ELLAGIC ACID - USES

It inhibits the tyrosinase activity and the content of melanin, whitening the skin and effectively removing spots of age and sun.

It is a natural antioxidant that effectively eliminates free radicals. It also reduces wrinkles, reaffirms and regulates the skin.

It prevents the secretion of the skin from excess oil and prevents scalp oil, hair loss and is applied in treatments against dandruff.

It is an ultraviolet light absorber that reduces the damage caused by UV rays.

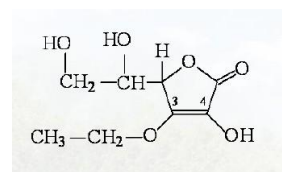
In addition, it can effectively protect the skin from external damage and suppress the formation of melanin, having an antioxidant effect.

Its uses in cosmetics are detailed below:

- Whitening products: face cream, whitening cream, lotions, cream, gel, mask, etc.
- Sunscreen product: sunscreen, sunscreen lotion;
- Astringent, antiperspirant;
- Shampoo anti dandruff.

ETHYL ASCORBIC ACID

INCI Name: 3-O-Ethyl Ascorbic Acid
CAS-No. 86404-04-8



ETHYL ASCORBIC ACID - PROPERTIES

3-O-ethyl ascorbic acid is an ethereal derivative of ascorbic acid the most excellent derivative of ascorbic acid so far. It is very stable in chemical structure, a real stable and discolored derivative of ascorbic acid, but also it can enter into skin and be metabolized by body as ascorbic acid.

So its effect is better than pure ascorbic acid. 3-O-ethyl ascorbic acid is a unique lipophilic and hydrophilic material, easily used in cosmetic formulation. The most important is that 3-O-ethyl ascorbic acid can easily enter into dermis and play biological effect, while pure ascorbic acid almost does not enter into dermis. 3-O-ethyl ascorbic acid is an excellent choice for cosmetic chemists.

ETHYL ASCORBIC ACID - USES

Together with vitamin A and its derivatives (retinoids), vitamin C is the queen of preventive treatments.

The properties of L-ascorbic acid can also be beneficial in case of skins with acne, as it reduces inflammation and helps to eliminate post-inflammatory hyperpigmentation.

In general it improves the tone and appearance of the skin and helps to keep it hydrated. The depigmenting effectiveness and that of enhancing the production of collagen, are related to the penetrating capacity of the product.

Its uses in cosmetics are detailed below: It has 3 key functions:

- Antioxidant (neutralizes free radicals formed during and after sun exposure)
- Depigmenting (inhibits the enzyme tyrosinase, which is responsible for producing melanin when we are exposed to solar radiation),
- Anti-aging action (promotes the synthesis of elastic fibers such as collagen).

AZELAIC ACID

INCI Name: Azelaic Acid
CAS-No. 123-99-9



AZELAIC ACID - PROPERTIES

Azelaic acid is an agent capable of fighting bacterial production, its proliferation and inflammations.

Appearance: White to slightly yellow crystalline monocle rhombus, needle crystalline powder.

Solubility: 5% to 1% 1N NaOH solution is colorless and transparent.

Melting point: 104 °C - 109 °C

AZELAIC ACID - USES

This acid is usually used in dermatological treatments.

This is because, in any of its presentations, it has antiseptic properties that fights bacteria and also prevents their proliferation.

Also, it is known for relieving inflammations.

On the one hand, azelaic acid is mainly used to treat acne.

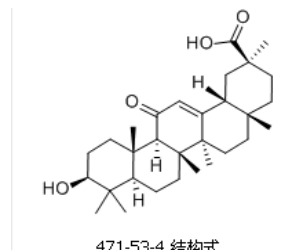
It can be a primary ally to eliminate the bumps, lesions and swelling caused by rosacea, a disease that affects the skin and that mainly causes redness, pimples and blush.

Widely used in gels and creams to treat melasma and cutaneous malignant melanoma. Its uses in cosmetics are detailed below:

- Antioxidant, depigmenting, anti-bacterial, disinfectant, antifungal, anti-itching, reduces redness.
- Gels, creams, lotions, serums.
- Treatment of malignant lentigo and melasma or chloasma, as it inhibits tyrosinase by.
- Anti-acne and rosacea treatments; Treats inflammation, swelling and redness caused.

GLYCYRRHETINIC ACID

INCI Name: 18-Beta Glycyrrhetic Acid
CAS-No. 471-53-4



GLYCYRRHETINIC ACID - PROPERTIES

Glycyrrhetic acid has topical anti-inflammatory, healing and epithelializers qualities. Used for inflammatory non infective skin disorders and oral cavity conditions.

Appearance: White or almost white crystalline powder.

Melting point: 288-297°C

GLYCYRRHETINIC ACID - USES

Glycyrrhetic acid has antiherpetic properties for herpes type I, II, Zoster and human papillomavirus.

It is also used for its sweetening, anti-inflammatory and expectorant properties; It increases mucus secretion thus causing an antacid and antiulcer action at the gastrointestinal level. It is an active ingredient with anti-inflammatory properties used in cosmetics and creams to treat acne and red spots on the face: It is currently included to reduce inflammation when there are small infections in the skin tissue or due to the bulge produced by mild acne pimples.

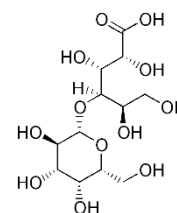
When given topical use it is effective as an anti-inflammatory medicament, so it is possible to find this ingredient in acne creams and skin care. At the same time it reduces inflammation, eliminates bacteria and microorganisms that in many cases appear and form pus grains.

Its uses in cosmetics are detailed below:

- To eliminate skin inflammation.
- To avoid redness.
- Anti-inflammatory.
- Antibacterials.
- Soothing, etc.

LACTOBIONIC ACID

INCI Name: Lactobionic acid
CAS-No. 96-82-2



LACTOBIONIC ACID - PROPERTIES

Lactobionic acid (LA) is a newer cosmeceutical active belonging to the class of alpha- hydroxyacids (AHAs). Alpha-hydroxyacids (AHAs) are known as very effective exfoliants, moisturizers, and SC plasticizers which belong also to a rapidly growing segment of anti- aging moisturizers. LA is a strong humectant, more effective than regular AHAs, and it could be also presumed that LA increases the synthesis of GAGs in the skin.

A relatively recent study of the effects of LA-containing products has revealed significant improvement in all photoaging and texture parameters on exposed skin, and significant increase in skin thickness, with no signs of intolerance; it has also been shown to enhance cell turnover in vitro. It is considered to be the latest generation of hydroxy acids.

Appearance: The solution is clear.

Solubility: Easily soluble in water, slightly soluble in glacial acetic acid, anhydrous ethanol and in methanol.

Melting point: 113 - 118 °C

LACTOBIONIC ACID - USES

One of the properties that differentiate this acid from others is its high antioxidant power that inhibits the production of free radicals (induced by UV radiation), the main cause of skin aging.

It also strengthens the skin's barrier function due to its stimulating action on epidermal regeneration and its moisturizing properties, both for increasing absorption and for preventing transepidermal water loss. It helps to reverse the signs of skin photoaging, since it favors epidermal regeneration and differentiation, and at the dermal level it produces an increase in the collagen fibers and improves the quality of elastic

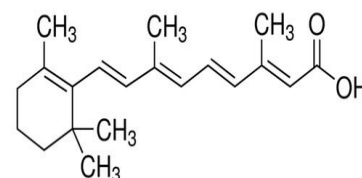
fibers causing a marked improvement in the appearance and physiology of the skin.

This acid in particular, is featured by its high power in uses such as: Exfoliator, Moisturizer, antioxidant and preservative. we detail other uses in cosmetics below:

- Improves skin elasticity
- Suppresses small expression wrinkles and improves the appearance of deep ones.
- It acts against macules and hyperpigmentation.
- Scars and ingrown hairs.
- Photoaging.
- Acne and rough feeling to the touch.

RETINOIC ACID

Product Name:	RETINOIC ACID
INCI Name:	RETINOIC ACID
CAS-NO:	302-79-4



RETINOIC ACID PROPERTIES

Retinoic acid is a metabolite of vitamin A, it is also known as retinol or tretinoin. It is an antioxidant that blocks free radicals and prevents premature aging of cells. It is an antioxidant and activator of natural collagen.

It is involved in the functions of vitamin A necessary for growth and development.

- 🌿 **Appearance:** Yellow to light yellow crystalline powder
- 🌿 **Color:** yellowish to light orange
- 🌿 **Molecular weight:** 300.4 gr / mol
- 🌿 **Solubility:** practically insoluble in water, poorly soluble in alcohol and chloroform. Quite soluble in ether and soluble in methylene chloride.
- 🌿 **Melting point:** approximately 182 °C with decomposition.

RETINOIC ACID USES

Retinoic acid acts as a natural collagen activator which improves skin elasticity.

The aging process occurs because elastin fibers lose strength and the skin begins to sag; the fibroblasts stop generating the volume of natural collagen that the skin needs and wrinkles begin to form, showing a skin with poor appearance and sagging.

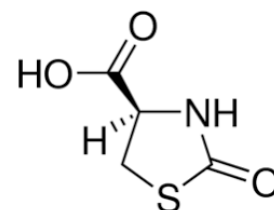
That is why the activation of collagen is so beneficial. It is currently widely used to remove skin blemishes, reduces excessive coloration, the well-known hyperpigmentation and improves the entire tone of the skin and face, since it is one of the best depigmenting agents that exists.

Its uses in cosmetics are detailed below:

- Creams, gels and hydroalcoholic solutions.
- It is widely used in anti-aging creams, as it works very well at stopping the degenerative processes of aging in the skin.
- It is also usually used in acne treatments with, papules and pustules.
- Flaccidity of the face.
- Scars and ingrown hairs.
- Photoaging.
- Acne and rough feeling to the touch.

OXOTHIAZOLIDINECARBOXYLIC ACID

INCI Name: OXOTHIAZOLIDINECARBOXYLIC ACID
 CAS-NO: 19771-63-2



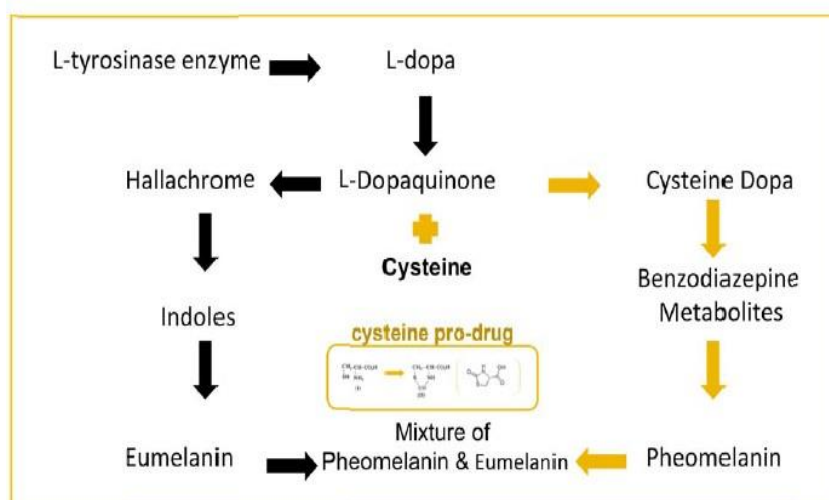
OXOTHIAZOLIDINECARBOXYLIC ACID - PROPERTIES

2-Oxothiazolidin-4-carboxylic acid (procysteine) can be rapidly absorbed through the skin at a dosage of 1 to 10%. It is a safe, non-irritating and non-comedogenic product, has high compatibility with surfactants and other ingredients and is easily soluble in water. This product is very stable and can be used in a wide pH. It is a non-polluting, environmentally friendly product.

OXOTHIAZOLIDINECARBOXYLIC ACID - USES

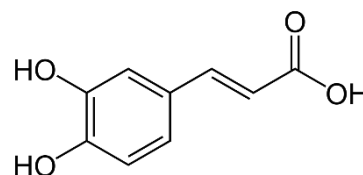
2-Oxothiazolidin-4-carboxylic acid is recommended for whitening, anti-wrinkle, moisturizing and anti-spot applications. It is also suitable for UV protectors, anti-acne creams, facial masks, night creams and skin creams.

Whitening Mechanism



CAFFEIC ACID

INCI Name: CAFFEIC ACID
CAS-No. 331-39-5
EC No. 206-361-2



CAFFEIC ACID - PROPERTIES

Caffeic acid is an organic compound that is classified as a hydroxycinnamic acid. This yellow solid contains phenolic and acrylic functional groups. It is found in all plants because it is a key intermediary in the biosynthesis of lignin, one of the main forms of biomass.

This acid is a natural substance, derived from phenol, "found in vegetables such as coffee." Its main asset is coffee (where its name comes from) and it is recommended to include it for its great properties.

- 🌿 **Appearance:** crystalline powder; something yellow
- 🌿 **Melting point:** 212-219 °C
- 🌿 **Recommended use dose:** 0.5-2.0%
- 🌿 **Applications:** antioxidant additives, anti-photoaging and lightning, etc.

CAFFEIC ACID - USES

Caffeic acid can absorb ultraviolet rays effectively and even a low concentration of caffeic acid can inhibit the synthesis of melanin. Therefore, it can be used as antioxidant and anti-aging additives.

Peeling with caffeic acid: the latest in facial rejuvenation.

Caffeic acid peeling is a novelty composed of natural substances that is used to achieve facial rejuvenation. Compared to other types of scrubs, it has the advantage of being **"softer than others, does not irritate and is suitable for all skin types"**

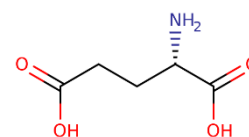
These characteristics, together with the possibility of adapting the acid concentration according to the person and modulating the depth of the treatment, provide the product with high safety and adaptability for the person's skin. It also benefits from many of the properties of phenol, which is used in cases of increased skin aging due to its potency.

In the case of caffeic acid, **the performance is more tenuous and respectful of the skin, being perfect for mild to moderate skin damage.**

POLYGLUTAMIC ACID

INCI Name: SODIUM POLYGLUTAMATE;

CAS-No. 28829-38-1; 7732-18-5



POLYGLUTAMINIC ACID- PROPERTIES

Gamma polyglutamic acid has a **long-lasting moisturizing effect**. The moisturizing effect is better than sodium hyaluronate and collagen, which keeps the skin moist and elastic for a long time.

Gamma polyglutamic acid **reduces skin wrinkles, synergistic effect**. Stabilize and increase the hyaluronic acid content of the skin, **increase the natural moisture factor of the skin, promote the skin to maintain the absorption of ingredients, etc.**

Gamma polyglutamic acid has a mild and safe bleaching effect and inhibits the growth of melanin.

- 🌱 **Appearance** : White to off white granular or powder
- 🌱 **Molecular weight - we have it of two different qualities:**
 - ≥2000 kDa
 - ≥700 kDa

POLYGLUTAMINIC ACID - USES

Polyglutamic acid (PGA), naturally present in the skin, helps maintain hydration levels and retains 4 times more water in the skin than hyaluronic acid.

Helps to **hydrate the skin, creating a hydration film that smoothes the appearance of wrinkles and fine lines.**