

TECHNICAL DATA SHEET

Product Name: Vitamin C (Ascorbyl Glucoside)

INCI Name: Ascorbyl glucoside

CAS: 129499-78-1

Synonyms: Ascorbic acid 2-glucoside; 2-O-a-D-Glucopyranosyl-L-ascorbic acid

Chemical Classification: Carbohydrate

Functional Category: Antioxidant, Skin Conditioning Agent - Miscellaneous, Skin Whitening/Lightening Agent

IUPAC Name: (2R)-2-[(1S)-1,2-dihydroxyethyl]-3-hydroxy-4-[(2R,3R,4S,5S,6R)-3,4,5-trihydroxy-6-(hydroxymethyl)oxan-2-yl]oxy-2H-furan-5-one

Description: Ascorbyl Glucoside is a chemical compound formed by linking ascorbic acid with a glucose molecule. The formation of a stable glycosidic bond between the hydroxyl group of glucose and the hydroxyl group of ascorbic acid at the C-2 position results in a derivative of Vitamin C that is significantly more stable, degrades more slowly, and is more resistant to light and heat. Pure Vitamin C is known to be most stable at low pH values, which can be irritating to the skin. Ascorbyl Glucoside is less sensitive to pH levels, making it suitable for formulations closer to the natural pH of the skin, thus being milder and less irritating compared to pure Vitamin C. It appears as a white to light yellow crystalline powder and is soluble in water.

Skin Benefits and Effects:

- **Enzymatic Activation:** When a product containing ascorbyl glucoside is applied to the skin, enzymes present in the skin, known as glucosidases, start a chemical reaction to break down the chemical bond between the glucose and ascorbic acid molecules. This enzymatic degradation occurs gradually, allowing for controlled release of ascorbic acid. Once released, ascorbic acid becomes active. Thus, the key mechanism of action for ascorbyl glucoside is its ability to provide prolonged availability of Vitamin C through enzymatic activation, resulting in numerous skin benefits without

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the rapid decomposition or instability often associated with other forms of Vitamin C.

- **Neutralization of Free Radicals:** Active Vitamin C acts as an antioxidant, neutralizing free radicals generated by UV exposure, various pollutants, and other environmental factors. This reduces oxidative stress in the skin.

- **Inhibition of Melanogenesis:** Vitamin C can inhibit the enzyme tyrosinase, which is crucial for melanin synthesis. By reducing melanin production, it helps in evening out skin tone and reducing dark spots and hyperpigmentation.

- **Stimulation of Collagen Synthesis:** Vitamin C is an important cofactor in the synthesis of collagen, a protein that keeps the skin firm and elastic. By stimulating collagen synthesis, ascorbyl glucoside can help reduce the appearance of wrinkles and improve overall skin texture.

- **Skin Renewal:** The antioxidant properties of Vitamin C can enhance skin renewal processes, accelerating the healing process.

Usage: Easily incorporated into cosmetic emulsions and other formulations. Typical concentrations range from 0.5% to 20%. Recommended pH range is 5.0 - 6.0. For external use only.

Applications: Ascorbyl glucoside is used in various types of cosmetic products. It is often found in facial serums, formulated to be easily absorbed and penetrate deeply into the skin to provide benefits like brightening, hydration, and antioxidative protection. It can also be found in face creams that provide hydration and care while simultaneously helping to lighten the skin, reduce wrinkles, and improve skin texture. It is added to lotions and toners to provide additional hydration and antioxidative protection, while also helping to improve skin tone and texture. It can be found in face masks used for deep cleansing, hydration, and revitalization of the skin. Sometimes used in eye care products to reduce dark circles, under-eye bags, and fine lines. It can also be added to body care products, like body and hand lotions, to provide hydration and antioxidative protection to the skin.

Method of Production: Ascorbyl glucoside is obtained through a chemical reaction between ascorbic acid and glucose, using enzymatic or chemical catalysts. After forming the bond between these two components, the product undergoes a purification and stabilization process to ensure it is pure, effective, and stable for use in cosmetic products.

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Animal Testing: The substance is not tested on animals

GMO: Non-GMO

Vegan: Does not contain animal-derived components

Storage: Store in a cool, dry place, away from light. Room temperature is suitable for regular storage, and a temperature of 2-8°C or lower for long-term storage.

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