

TECHNICAL DATA SHEET

Product Name: Vitamin C (Sodium ascorbyl phosphate)

INCI Name: Sodium Ascorbyl Phosphate

CAS: 66170-10-3

Chemical Classification: Heterocyclic compound, organic salt

Functional Category: Antioxidant, skin and hair conditioner

Description: Sodium Ascorbyl Phosphate (SAP) is a stabilized (phosphorylated) sodium salt of L-ascorbic acid. It does not degrade in water-containing formulations. The esterification of ascorbic acid protects vitamin C from oxidative degradation. It is stable in light and in the presence of oxygen. Purity >95.0%. A white to gray-white powder with a mild odor. It is soluble in water (clear solution at a concentration of 10%). Its color and stability can be severely compromised if the pH of the formulation is below 5. In cases where the pH drops below 5, there is a greater likelihood of hydrolysis of SAP back into ascorbic acid (Vitamin C) and phosphate. Ascorbic acid is much more unstable in aqueous formulations, especially in light and in the presence of oxygen, which can lead to faster degradation and reduction in product efficacy. Formulators should take this into account when designing products to ensure the longevity and efficacy of SAP in the product.

Benefits:

- **Powerful antioxidant:** Helps protect the skin from damages caused by free radicals (UV radiation, environmental pollution, oxidative stress). Can help prevent premature aging and maintain overall skin health. The antioxidant effect can be increased by adding L-ascorbyl palmitate and/or vitamin E.

- **Evens skin tone:** Has the ability to inhibit the production of melanin, the pigment responsible for dark spots and uneven skin tone. Regular use can help reduce dark spots, hyperpigmentation, and acne scars, resulting in a brighter and more even complexion.

- **Collagen synthesis:** Vitamin C plays a vital role in collagen synthesis, a protein

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that helps maintain the structure and elasticity of the skin. By stimulating collagen production, it can help improve skin firmness and smoothness, reduce the appearance of wrinkles and fine lines.

- **Anti-inflammatory action:** Possesses anti-inflammatory properties. Can soothe irritated skin. Can be beneficial for conditions such as acne, rosacea, and sensitive skin by reducing redness and inflammation.

- **UV damage protection:** Helps neutralize free radicals generated by UV radiation and reduces the harmful effects of UV radiation on the skin.

- **Hydration and moisture retention:** Vitamin C helps improve the skin's natural barrier, enhancing skin hydration and preventing water loss. Skin is better hydrated, looks healthier and more radiant. Improves the aesthetic appearance of aged and tired skin.

- **Improved wound healing:** Vitamin C is involved in collagen synthesis, which is crucial for wound healing. Can speed up the healing process, reduce the appearance of scars, and promote the regeneration of healthy skin cells.

Usage: Added at the end of the manufacturing process just before the preservative, by dissolving in a little distilled water. Common concentrations used range from 0.2% to 3.0%, with a maximum of up to 10.0%. For external use only.

Applications: Sodium Ascorbyl Phosphate (SAP) is often used in facial serums as a key ingredient. The use of SAP allows for deep action on specific skin issues such as aging, hyperpigmentation, uneven skin tone, and acne. Serums with SAP are formulated to contain an optimal concentration of this ingredient, usually between 1% and 5%, to ensure efficacy without causing irritation. Serums with SAP are typically applied to clean skin, before cream or lotion, to allow for maximum absorption. It is recommended to use twice daily, in the morning and evening, for optimal results. Morning use can provide additional protection from UV rays and oxidative stress throughout the day, while evening use allows for skin regeneration and renewal overnight. SAP is often combined with other ingredients in serums, such as vitamin E, ferulic acid, niacinamide, and hyaluronic acid, to enhance its antioxidant protection, hydration, and lightening effect. This synergy allows for the creation of versatile formulas that target multiple

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skin issues simultaneously. Face creams enriched with SAP provide antioxidant protection, hydration, and support to the skin's collagen network throughout the day or night. They are formulated to balance hydration and nutrients needed by the skin, while also providing the therapeutic benefits of SAP for a brighter and healthier complexion. Body lotions with SAP help improve the overall appearance and health of the skin on the body. SAP in these formulations helps reduce the appearance of age spots and uneven skin tone, providing antioxidant protection and stimulating skin cell renewal. SAP can also be found in sunscreen product formulations due to its ability to enhance skin protection from harmful UV rays. Combined with UV filters, SAP further protects the skin from oxidative stress and photoaging. Formulations aimed at acne treatment often contain SAP due to its antimicrobial and anti-inflammatory properties. These products help reduce inflammation, redness, and the number of acne lesions, making the skin clearer and healthier. SAP is a common ingredient in products designed for sensitive skin. It provides the benefits of vitamin C without the risk of irritation, making it ideal for individuals with sensitive or reactive skin.

Storage: Relatively stable if protected from moisture and heat. The product can be stored for at least 24 months in an unopened, original container and at temperatures below 20°C. Keep the container well closed.

Source Materials: L-ascorbic acid, sodium, phosphoryl chloride (or other phosphorylating agents)

Method of Production: Sodium Ascorbyl Phosphate is produced by direct phosphorylation of the sodium salt of ascorbic acid, where l-ascorbic acid is suspended in an oxygenated, non-hydroxyl solvent along with sodium and then treated with a phosphorylating agent.

Animal Testing: The substance has not been tested on animals

GMO: Not GMO

Vegan: Does not contain animal-derived components

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