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Product Name: Vitamin E (dl-alpha tocopheryl acetate 98%)

INCI Name: Tocopheryl Acetate

CAS Number: 7695-91-2

Synonyms: DL-alpha-Tocopherol acetate, 7695-91-2, alpha-tocopheryl acetate, E-vicotrat, Tocopherol-d6 Acetate

Chemical Classification: Ester, Heterocyclic Compound

Functional Category: Antioxidant, Skin Conditioner

IUPAC Name: [2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-3,4-dihydrochromen-6-yl] acetate

Description: Tocopheryl acetate is an ester of tocopherol (vitamin E) and acetic acid. This form of vitamin E is widely used in the cosmetic industry due to its stable physicochemical properties and numerous benefits for the skin. Tocopheryl acetate protects the skin from oxidative stress and damage caused by free radicals, making it highly effective in preventing premature skin aging and defending against external aggressors like UV radiation and pollution. It hydrates the skin, supports the natural barrier function, and reduces transepidermal water loss. Additionally, it has soothing properties, alleviating irritation and redness, promoting skin health, and improving its appearance. Regular use of products containing tocopheryl acetate may help reduce the appearance of wrinkles and hyperpigmentation, resulting in smoother and younger-looking skin. Unlike free tocopherol, tocopheryl acetate is not immediately biologically active. To become active vitamin E, the acetate group must first be cleaved by skin enzymes to release tocopherol. The efficiency of this process depends on the skin's enzymatic activity, which may be lower in older individuals or those with a compromised skin barrier. Therefore, tocopheryl acetate is suitable for long-term care, while free tocopherol provides immediate antioxidant protection. Given that its activity depends on the skin's ability to convert acetate into active tocopherol, combining it with other active ingredients is recommended to achieve synergistic effects. Tocopheryl acetate appears as a viscous, transparent yellow liquid with a mild odor. It is insoluble in water but dissolves well in oils and alcohol, making it suitable for a wide variety of cosmetic formulations. It

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has a high purity level (>98%) and an optimal pH range of 6 to 8. Its activity is measured in International Units (IU), with 1,000 IU per gram of solution, approximately equal to one milliliter.

Benefits:

- Protects the skin from free radicals, preventing premature aging and maintaining skin health.
- Hydrates the skin, enhances microcirculation, and forms a protective barrier on its surface.
- Supports wound healing, reduces scars, and restores damaged skin.
- Soothes irritation and inflammation, benefiting conditions such as eczema and sunburn.
- Neutralizes the harmful effects of UV radiation, reducing the risk of sun-induced damage.
- Improves the appearance of wrinkles and age spots, promoting a more youthful look.
- Nourishes the scalp, supports hair growth, and hydrates hair, leaving it smooth and shiny.

Usage Instructions: Tocopheryl acetate is widely used in various cosmetic products, with recommended concentrations depending on the formulation type and desired effects.

Facial care products (e.g., serums, creams): 0.5% to 5% for antioxidant and moisturizing effects.
Body care products (e.g., lotions): Up to 10%, suitable for larger skin areas.
Lip care (e.g., balms, regenerative creams): 1% to 3% for protecting and restoring sensitive skin.
Hair care (e.g., oils, masks): 0.5% to 2% to hydrate and strengthen the scalp and hair.

It is added to the oil phase during formulation since it is insoluble in water. Its stability allows for use in formulations without heating or with minimal heat exposure. The optimal concentration depends on the overall product composition and the specific role of tocopheryl acetate in the formulation.

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Source Materials: Trimethylhydroquinone and Isophytol

Production Process: Dl-alpha tocopheryl acetate is synthetically produced by condensing 2,3,5-trimethylhydroquinone with isophytol in an inert solvent (e.g., benzene or hexane) with a catalyst such as zinc chloride. The resulting alpha-tocopherol is then treated with acetic anhydride to produce tocopheryl acetate.

Animal Testing: Not tested on animals.

GMO: Non-GMO.

Vegan: Does not contain animal-derived components.

Storage Conditions: Store in a cool, dry place, protected from light.

Country of Origin: China