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Coenzyme Q10 (Water Soluble)

Product Name: Coenzyme Q10 powder

INCI name: Ubiquinone

CAS: 307-95-0

Synonyms: Coenzyme Q10, CoQ10, Ubidecarenone, Coenzyme Q10, Ubiquinone

Chemical classification: Quinone (benzoquinone), Ethers

Functional category: Antioxidant, skin conditioning agent ~ other

IUPAC name: 2,3-dimethoxy-5-methyl-6-decaprenyl-1,4-benzoquinone

Description: Coenzyme Q10 (water soluble) is a water-soluble variant of ubiquinone, technologically adapted for application in aqueous and hydrophilic cosmetic systems. Unlike classical lipophilic Coenzyme Q10, this form is modified through solubilization, microencapsulation, or bonding to hydrophilic carriers. This allows for stable dispersion in water without the need for an oil phase. In cosmetic formulations, it is used for its antioxidant activity in an aqueous medium. It acts predominantly in the surface and epidermal layers of the skin, neutralizing free radicals present in the aqueous phase of the formulation and on the skin's surface. Thereby, it contributes to reducing oxidative stress caused by UV radiation, pollution, and other external factors. It is well compatible with hydrophilic active ingredients. Water-soluble Coenzyme Q10 is particularly suitable for serums, gels, tonics, essences, and light emulsions with a high water content. It enables formulations with a light texture and rapid absorption, leaving no greasy feeling on the skin. Therefore, it is frequently used in products intended for oily and combination skin, as well as sensitive areas such as the eye contour, with careful dosage. Although this form does not penetrate deeply into the skin, its efficacy is achieved locally. Antioxidant protection is attained in zones where oxidative stress is most pronounced, and its role is primarily preventive, contributing to long-term protection and support of the skin barrier. It is not used for rapid structural skin remodeling. The stability of water-soluble Coenzyme Q10 depends on the carrier quality and the pH value of the formulation. It is sensitive to light and

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oxidation, which is why it is often combined with other antioxidants and packaged in protective containers to preserve its functionality during use.

Benefits:

- Acts as a powerful lipophilic antioxidant that protects the skin from free radicals.
- Reduces oxidative damage caused by UV radiation and external stressors.
- Protects the skin's lipid barrier from peroxidation and degradation.
- Indirectly contributes to the preservation of collagen and elastin in the skin.
- Slows down the appearance of fine lines and signs of premature aging.
- Supports mitochondrial energy production in epidermal cells.
- Improves cellular vitality and the functional capacity of the skin.
- Contributes to a more even skin tone and a healthier visual appearance.
- Increases the skin's resistance to daily oxidative stress.
- Suitable for long-term use in anti-aging and protective formulations.

Method of use: Coenzyme Q10 (water soluble) is introduced directly into the aqueous phase of the formulation or in the final stage of manufacturing after the system has cooled, in accordance with the carrier manufacturer's recommendations. It is most commonly added to an already formed aqueous or gel base with gentle mixing, without the need for heating, as elevated temperatures can negatively affect the stability of the solubilized system. It is important that the pH of the formulation is within the recommended range, most often slightly acidic to neutral, to preserve stability and antioxidant activity. In light aqueous serums, essences, and tonics, water-soluble Coenzyme Q10 is typically used at concentrations ranging from 0.05% to 0.30%. In gels and hydrogel formulations, the typical range is 0.10% to 0.40%, depending on the gel type and total composition. In light emulsions with a high water content, the concentration usually ranges between 0.05% and 0.30%, taking into

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account compatibility with emulsifiers and preservatives. In products intended for daily care and preventive antioxidant protection, lower concentrations are recommended, while serums with a pronounced anti-aging focus may use the upper limits of the recommended range. Increasing the concentration beyond usual values rarely brings additional benefit, as the effect is limited by local action in the superficial layers of the skin and may increase the risk of formulation destabilization.

Animal testing: In accordance with applicable European regulation (Regulation (EC) No 1223/2009 on cosmetic products), the substance has not been tested on animals. The safety assessment of the raw material is based on available toxicological data, scientific literature, and validated alternative testing methods (*in vitro* and *in silico*). *In silico* is a term used for testing and evaluation methods performed using computer models and simulations rather than in the laboratory on living organisms (*in vivo*) or cell cultures (*in vitro*). This note confirms compliance with the ban on animal testing and serves solely for informational purposes for the further use of the raw material in cosmetic formulations.

GMO: Non-GMO

Vegan: Does not contain animal-derived components