

TECHNICAL DATA SHEET

Coconut Extract

Product Name: Hydro-glycerin coconut extract

INCI Name: Glycerin, Aqua, Coconut (Cocos nucifera) Extract, Benzyl Alcohol, Dehydroacetic Acid

CAS: 56-81-5, 7732-18-5, 91722-67-7, 100-51-6, 520-45-6

Botanical Name: *Cocos nucifera* L.

Synonyms: Coconut, Coco, Kokos, Kokospalme (German), Cocotier (French), Palma da coco (Portuguese).

Chemical Classification: Mixture

Functional Category: Skin and hair conditioning agent, humectant, emollient

Extraction Method: The extract is obtained using an ultrasonic extraction method operating at frequencies between 20 and 25 kHz. At these frequencies, ultrasonic waves generate microscopic bubbles within the liquid medium containing the plant material, leading to a phenomenon known as cavitation. Cavitation creates localized conditions of extreme pressure and temperature in the microenvironment surrounding the imploding bubbles. This phenomenon mechanically damages plant cell walls, releasing intracellular active compounds and significantly increasing extraction speed and efficiency. The process is conducted at a temperature of 25 °C to preserve the stability of heat-sensitive components, such as flavonoids, vitamins, and essential oils. Compared to conventional maceration methods, ultrasonic extraction allows for shorter processing times, higher yields, and better utilization of the botanical raw material. The resulting extract is preserved with a combination of benzyl alcohol (0.86%) and dehydroacetic acid (0.14%), a preservative system approved for use in natural cosmetics and certified by ECOCERT and COSMOS. The extract is water-soluble, allowing easy integration into various water-based cosmetic formulations. The pH value of the finished extract ranges from 4.0 to 6.5, making it suitable for most dermal applications without requiring additional pH adjustments to the formulation.

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Extract Description: Hydro-glycerin coconut extract is obtained by extracting fresh coconut in a mixture of water and glycerin. The extract possesses a mild, natural coconut scent and a transparent to slightly cloudy texture. It is primarily used in cosmetic formulations for its moisturizing and softening properties, where glycerin acts as a carrier that stabilizes plant components and helps retain skin moisture. The active substances present in coconut help strengthen the skin's protective barrier, imparting a soft and supple feel, while in hair care preparations, it is used to improve hair smoothness and reduce dryness. Thanks to its mild profile, hydro-glycerin coconut extract is suitable for use in products designed for sensitive skin, including baby cosmetics. Its stability in aqueous systems allows for easy incorporation into a wide range of formulations such as lotions, toners, masks, and gentle shampoos. The extract is non-comedogenic and non-irritating, making it suitable for oily skin care as well, where it helps maintain moisture levels without feeling heavy or greasy. It achieves optimal performance when combined with other humectants and botanical extracts, especially in formulations aimed at soothing, protecting, and providing long-lasting skin hydration. Water-soluble. pH 4–6.5. Preserved with caprylhydroxamic acid and glyceryl caprylate.

Bioactive Compounds: Coconut extract contains polyphenolic compounds, such as gallic acid and catechins, which possess antioxidant properties. Antioxidants help protect cells from oxidative stress and offer various beneficial effects for skin health. In addition to gallic acid, the extract may contain quercetin, known for its antioxidant and anti-inflammatory properties. Apigenin is a flavonoid polyphenol found in certain coconut varieties, exhibiting antioxidant and potential anti-inflammatory effects. Kaempferol is another flavonoid polyphenol that also provides antioxidant and anti-inflammatory benefits. The extract may contain terpenoids—aromatic compounds responsible for the characteristic coconut aroma (limonene, myrcene, linalool, α -terpineol, β -caryophyllene, and geraniol). Coconut extract contains various phytosterols, though usually in low amounts (beta-sitosterol, campesterol, and stigmasterol). Vitamin content includes tocopherols, including alpha-tocopherol (a form of vitamin E), which acts as an antioxidant beneficial for skin health, as well as smaller amounts of vitamin C and B-complex vitamins (e.g., thiamine, riboflavin). Coconut extract is a good source of potassium and contains smaller amounts of phosphorus, magnesium, iron, selenium, sodium, and calcium.

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Benefits:

- Helps maintain skin moisture levels
- Provides mild antioxidant skin protection due to the presence of polyphenols and vitamin E
- Soothes sensitive and irritated skin through the gentle anti-inflammatory action of phenolic compounds
- Softens and hydrates hair while mildly moisturizing the scalp
- Does not provide UV protection, but helps mitigate the effects of oxidative stress following sun exposure

Method of Use: Hydro-glycerin coconut extract is used as an active component in the aqueous phase of formulations, typically at concentrations ranging from 1% to 5%. In products intended for intense hydration, it can be applied in dosages up to 10%, depending on compatibility with other ingredients. It is most commonly added to toners, gels, serums, emulsions, and gentle shampoos, where it should be incorporated during the cooling phase to preserve the stability of the bioactive substances present. Due to its good solubility in water and glycerin, it easily blends into cold-process formulations without requiring prior dilution. Formulating within a pH range of 4.5 to 7 is recommended to preserve the properties of the extract and prevent potential color or scent changes over time.

Safety: According to available data from the Cosmetic Ingredient Review (CIR), the safety of coconut-derived extracts, including Coconut (*Cocos nucifera*) Extract, was evaluated as part of a broader assessment of coconut-derived raw materials published in 2011. In that report, the CIR evaluated various coconut derivatives—including extracts, oils, and milk—and concluded they are safe for use in cosmetic products at concentrations commonly used in practice. For botanical coconut extracts specifically, the CIR did not set a precise concentration limit, noting instead that they are typically used in ranges up to 10%, provided formulations are microbiologically stable and free of contaminants such as pesticides or heavy metals. The CIR emphasized that leave-on products may contain lower concentrations of botanical extracts compared to rinse-off products; however, no maximum allowable limit was

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established specifically for coconut extract. In practice, hydro-glycerin coconut extract concentrations usually range from 1% to 5%, with concentrations up to 10% reserved for intensive moisturizing products, within which ranges it is considered safe for various skin types, including sensitive skin.

Animal Testing: In compliance with applicable European legislation (Regulation (EC) No 1223/2009 on cosmetic products), this 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* refers to testing and assessment methods performed using computer models and simulations rather than laboratory experiments on living organisms (*in vivo*) or cell cultures (*in vitro*). This note confirms compliance with the ban on animal testing and serves exclusively for informational purposes regarding further use of the raw material in cosmetic formulations.

GMO: Non-GMO

Vegan: Contains no animal-derived ingredients

Storage and Shelf Life: The product is stable when stored in a cool, dry place. Shelf life: 2 years.