

TECHNICAL DATA SHEET

Product Name: Elderflower Infused Oil

INCI name: Sambucus Nigra Flower Extract, Helianthus Annuus Seed Oil, Prunus Amygdalus Dulcis Oil, Tocopherol

CAS: 84603-58-7, 8001-21-6, 8007-69-0, 59-02-9

Botanical name: Sambucus nigra L.

Synonyms: Elderberry, European Elder, Black Elder, Baza, Holler, Sambucus

Chemical classification: Mixture (botanical extract in vegetable oils)

Functional category: Skin conditioning agent ~ occlusive, Skin conditioning agent ~ emollient, Antioxidant

Type of maceration: Ultrasonic maceration, cold-process method

Production method: Elderflower infused oil is obtained through ultrasonic extraction using ultrasound frequencies between 20 and 25 kHz. At these frequencies, ultrasonic waves generate microscopic bubbles in the carrier oil containing the botanical material, creating a phenomenon known as cavitation. Cavitation produces localized micro-conditions of high pressure and temperature around the imploding bubbles. This process mechanically disrupts the plant cell walls, releasing intracellular active compounds such as essential oils, flavonoids, carotenoids, and sterols. The extraction is carried out at 25 °C to preserve the stability of thermolabile molecules. Cold-pressed linoleic-type sunflower oil, rich in essential linoleic acid and with a smaller share of oleic acid, is used as the carrier oil, combined with sweet almond oil to improve texture and skin tolerance. Vitamin E is added as a natural antioxidant, enhancing product stability and extending shelf life without the need for synthetic preservatives. During extraction, the vessel containing the plant material and oils is cooled in an ice-water bath to prevent temperature rise. Ultrasonic treatment is applied in short, repeated intervals with pauses to control heat buildup. After completion, the infused oil is carefully filtered to obtain a clear, stable product ready for cosmetic use. This method has proven more efficient than traditional maceration, offering shorter extraction time and higher yield of bioactive compounds.

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Description: Elderflower infused oil is a multifunctional cosmetic ingredient with nourishing, protective, and conditioning properties. It has pronounced emollient action, smooths the skin surface, provides a pleasant sensory feel, and reduces transepidermal water loss by forming a subtle protective film. This action not only retains moisture but also helps preserve skin vitality over time. Its composition strengthens the skin barrier, enhances elasticity, and improves resilience, making it especially suitable for dry, sensitive, and mature skin. Its gentle nature also makes it suitable for products intended for sensitive regions, such as the area around the eyes, where it helps reduce signs of fatigue and fine lines. The presence of antioxidant compounds combined with tocopherol slows oxidative aging processes, neutralizes free radicals, and helps maintain a youthful appearance. The versatility of elderflower infused oil is reflected in its broad application range – it is used in nourishing creams and lotions, anti-age serums and emulgels, as well as in hair care products, where it enhances softness and natural shine.

Bioactive compounds: Elderflower infused oil is rich in a broad spectrum of bioactive compounds. It contains anthocyanins, primarily cyanidin-3-glucoside and cyanidin-3-sambubioside, responsible for strong antioxidant activity and skin protection against oxidative stress. It also includes flavonols such as quercetin, isoquercitrin, and rutin, which help strengthen capillaries, reduce inflammation, and restore epidermal balance. Phenolic acids, notably chlorogenic and ferulic acids, protect against free radicals and mitigate photo-damage. The composition is further enriched with triterpenes and phytosterols, mainly β -sitosterol and stigmasterol, which promote regenerative processes and support skin elasticity. In smaller amounts, tannins provide a mild astringent effect contributing to skin tone, while polysaccharides bind moisture, ensuring hydration and forming a protective film. Vitamins C and E act synergistically to preserve youthful appearance and vitality, while also extending the stability of formulations. The fatty acid profile of the carrier oils predominantly oleic, linoleic, and palmitic acids complements its nutritive value and gives elderflower infused oil its unique combination of emollient, antioxidant, and reparative properties.

Benefits:

- Hydrates the skin and reduces transepidermal water loss
- Softens and smooths the skin surface
- Strengthens the skin barrier and improves elasticity

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- Soothes irritation and provides calming effects
- Protects against oxidative stress and slows aging
- Supports epidermal regeneration and renewal

Usage: Elderflower infused oil is used in cosmetics as a functional ingredient providing hydration, elasticity, and skin protection, while also enhancing formulation stability due to its antioxidant compounds. It is incorporated into the oil phase of emulsions, contributing to barrier protection and film formation. In nourishing creams and lotions, a concentration of 2–5 % is recommended for an optimal emollient and protective effect. In anti-aging serums, emulgels, and regenerating products, it can be used at 5–10 % to maximize its antioxidant potential and skin-firming properties.

For hair care products such as oils, masks, and conditioners, it is typically used at 1–3 %, improving softness and shine without heaviness. Due to its mild nature, the oil can also be used in formulations for sensitive regions, such as the area around the eyes, where up to 2 % is recommended. In this way, elderflower infused oil proves to be a versatile ingredient suitable for a wide range of cosmetic applications from basic skincare products to specialized anti-aging and hair formulations.

Animal testing: In compliance with European Regulation (EC) No 1223/2009 on cosmetic products, this substance has not been tested on animals. The safety assessment is based on available toxicological data, scientific literature, and validated alternative testing methods (in vitro and in silico). In silico refers to assessment methods performed via computer modeling and simulations rather than in vivo (on living organisms) or in vitro (on cell cultures). This note confirms compliance with the EU ban on animal testing and is provided for informational purposes only, for further use of the ingredient in cosmetic formulations.

GMO: Non-GMO

Vegan: Contains no animal-derived components