

TECHNICAL DATA SHEET

Blueberry Infused Oil

Product Name: Blueberry Infused Oil

INCI Name: Vaccinium Myrtillus Fruit Extract, Helianthus Annuus Seed Oil, Prunus Amygdalus Dulcis Oil, Tocopherol

CAS: 84082-34-8 / 8001-21-6 / 8007-69-0 / 59-02-9

Botanical Name: Vaccinium Myrtillus

Synonyms: Blueberry Oil, Botanical Oil with Blueberry Extract, Blueberry Macerated Oil, Vaccinium Myrtillus Infusion, Huile infusée de myrtille, Aceite infusionado de arándano, Olio infuso di mirtillo, Heidelbeer-Mazeratöl / Heidelbeeröl, Óleo infundido de mirtilo

Chemical Classification: Mixture, Botanical Oil Extract (Lipophilic Macerate)

Functional Category: Skin Conditioning Agent ~ Occlusive, Skin Conditioning Agent ~ Emollient, Antioxidant

Maceration Type: Ultrasonic maceration, cold process

Method of Production:

Blueberry Infused Oil is produced using ultrasonic extraction technology with ultrasound frequencies ranging from 20–25 kHz. At these frequencies, ultrasonic waves generate microscopic bubbles within the oil containing the extract, leading to a phenomenon known as cavitation. Cavitation creates extreme localized pressure and temperature conditions around the imploding bubbles. These conditions mechanically disrupt plant cell walls, releasing active compounds such as essential oils, flavonoids, carotenoids, and sterols. Extraction is performed at a controlled temperature of 25°C in order to preserve the stability of thermolabile compounds. Cold-pressed high-linoleic sunflower oil and sweet almond oil are used as carrier oils. The sunflower oil contains a high proportion of essential linoleic acid and only a minor amount of oleic acid. Vitamin E is added as a natural antioxidant to maintain freshness and preserve oil quality while keeping the formulation completely natural. During extraction, the extraction vessel is cooled in an ice-water bath to prevent temperature increase. Ultrasonic treatment is applied in short intervals with pauses between cycles. After completion of the process, the infused oil is filtered to obtain a clear and usable oil. This extraction method is more efficient than traditional maceration techniques because it provides improved raw material utilization and significantly shorter extraction times.

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Description:

Blueberry Infused Oil is a functional cosmetic raw material rich in anthocyanins, tocopherols, and phenolic compounds, which collectively help protect the skin from oxidative stress, improve microcirculation, and contribute to a more even skin tone. The oil color ranges from golden yellow to reddish depending on the concentration of active compounds. Thanks to its slightly viscous texture, it spreads easily and absorbs quickly without leaving a greasy residue. It has a pleasant, mild fruity aroma and does not cause irritation, making it suitable even for sensitive and mature skin.

The oil acts as an emollient that softens the epidermis, restores the lipid barrier, and reduces transepidermal water loss. Its anti-inflammatory properties may help soothe redness and irritation, making it desirable in formulations intended for inflamed or reactive skin. Blueberry Infused Oil integrates well into serums, oil blends, balms, creams, and masks. It is used both in everyday moisturizing products and anti-aging formulations, especially when combined with botanical ceramides, coenzyme Q10, or lipophilic vitamins.

Due to its natural composition and pleasant sensory profile, this oil is increasingly used in products labeled as natural and organic cosmetics. Blueberry Infused Oil is compatible with a broad range of botanical oils, butters, and esters, allowing easy incorporation into various cosmetic products, including oil serums, balms, creams, lip care products, and nail treatments. It should be stored in tightly closed packaging away from light and heat sources in order to preserve the stability of its bioactive compounds.

Physical and Chemical Properties:

The oil ranges in color from golden yellow to light red and has a mild fruity aroma. Its texture is moderately viscous and spreads easily on the skin. Insoluble in water; miscible with vegetable oils, butters, and esters. The boiling point is not precisely defined due to the mixed composition, although the oil components boil above 200°C.

Viscosity: approximately 30–40 cSt at 25°C

Flash Point: >150°C

Density: approximately 0.91–0.93 g/cm³

Bioactive Compounds:

Blueberry Infused Oil contains a complex mixture of bioactive compounds derived from the fruit of *Vaccinium myrtillus*. The most important group consists of

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anthocyanins, natural water-soluble pigments that may partially migrate into the oil phase during maceration due to the presence of oil-transferable compounds and micro-emulsifying fractions naturally present in the fruit. These compounds are responsible for the characteristic reddish color of the infused oil and are known for their strong antioxidant activity.

The dominant anthocyanins in blueberry fruit include delphinidin, cyanidin, petunidin, peonidin, and malvidin glycosides. In addition to anthocyanins, the oil contains phenolic derivatives such as ferulic acid, caffeic acid, and p-coumaric acid, which contribute to protection against UV-induced skin damage and act as free radical scavengers.

Flavonoids including quercetin and myricetin are also present and exhibit anti-inflammatory and capillary-protective effects, contributing to improved skin tone uniformity and reduced skin reactivity. Tocopherols, natural forms of vitamin E, play a significant role as well, with α -tocopherol and γ -tocopherol being the most prominent. These compounds stabilize the lipid components of the formulation while helping maintain the integrity of cellular membranes.

The presence of carotenoids, particularly beta-carotene, provides additional antioxidant protection and supports epidermal regeneration. In addition to these polyphenolic and lipophilic compounds, the infused oil also retains phytosterols, natural plant sterols that contribute to lipid barrier restoration and improve skin elasticity.

Small amounts of resveratrol may also be present, a potent antioxidant with pronounced anti-aging potential, although its concentration depends on the extraction method, extraction time, and fruit maturity. This combination of bioactive compounds makes Blueberry Infused Oil not only aesthetically appealing, but also a highly functional ingredient for cosmetic formulations intended for skin protection, regeneration, and revitalization.

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Benefits:

- Protects the skin from oxidative stress due to the presence of anthocyanins.
- Helps reduce UV-induced skin damage thanks to phenolic acids.
- Soothes inflammation and supports capillary integrity due to flavonoid content.
- Protects cellular membranes and improves formulation stability because of naturally occurring tocopherols.
- Supports skin regeneration due to beta-carotene content.
- Strengthens the lipid barrier and improves skin elasticity through phytosterols.

Directions for Use:

Blueberry Infused Oil is used as a lipophilic component and may be incorporated during the oil phase or added during the final cooling phase of cosmetic formulations. It should not be exposed to high temperatures in order to preserve its bioactive compounds. In serums and lightweight oil blends, it is typically used at concentrations between 1–5%. In creams, balms, and masks, it is commonly used at levels between 5–20%, depending on the desired texture and functionality.

In formulations intended for sensitive areas, such as the eye contour area and lip balms, concentrations up to 10% are recommended. It combines particularly well with mild emollients and anti-inflammatory ingredients. The oil is also suitable for oil baths, nail care products, as well as lotions and creams intended for dry and mature skin. It contributes to barrier restoration while providing antioxidant protection.

Animal Testing: Substance has not been tested on animals.

GMO: GMO-free

Vegan: Does not contain animal-derived components