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Blueberry Fruit Extract

Product Name: Water-glycerin Blueberry Fruit Extract

INCI Name: Glycerin, Aqua, Blueberry Fruit Extract, Benzyl Alcohol, Dehydroacetic Acid

CAS: 56-81-5, 7732-18-5, 84082-34-8, 100-51-6, 520-45-6

Botanical Name: *Vaccinium angustifolium* Aiton

Synonyms: Bilberry Extracts; Extract of Whortleberry; Myrtocyan

Chemical Classification: Mixture (botanical extract in a water-glycerin solvent system with added preservatives)

Functional Category: Skin and hair conditioning agent, humectant, emollient, antioxidant (due to the presence of anthocyanins, flavonoids, and vitamin C)

Extraction Method:

The extract is produced using an ultrasonic extraction process employing ultrasound frequencies between 20 and 25 kHz. At these frequencies, ultrasonic waves generate microscopic bubbles within the liquid containing the plant material, resulting in a phenomenon known as cavitation. Cavitation creates localized zones of extremely high pressure and temperature around the collapsing bubbles, mechanically disrupting plant cell walls and releasing intracellular bioactive compounds, thereby significantly improving extraction efficiency and yield.

The extraction process is carried out at **25°C** to preserve thermolabile constituents such as flavonoids, vitamins, and volatile compounds. Compared with conventional maceration techniques, ultrasonic extraction provides shorter processing times, higher extraction yields, and more efficient utilization of botanical raw materials.

The finished extract is preserved with **0.86% benzyl alcohol** and **0.14% dehydroacetic acid**, a preservative system approved for use in natural cosmetics and compliant with **ECOCERT** and **COSMOS** standards. The extract is water-soluble, allowing easy incorporation into a wide range of water-based cosmetic formulations.

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The finished extract has a pH ranging from **4.0 to 6.5**, making it suitable for most dermal applications without requiring significant pH adjustment.

Description:

Water-glycerin Blueberry Fruit Extract (*Vaccinium angustifolium*) is a natural cosmetic active rich in anthocyanins, flavonoids, and vitamin C, providing powerful antioxidant protection against premature skin aging and environmental stressors. Naturally occurring fruit acids offer gentle exfoliating properties that help refresh the complexion and promote skin renewal.

Its glycerin base provides excellent moisturizing and skin-softening properties while enhancing the penetration of active compounds. The extract is suitable for all skin types, including sensitive skin, and is widely used in serums, facial toners, creams, and hair care products. It is particularly recommended for cosmetic formulations designed to refresh, revitalize, and protect the skin.

The extract has a naturally dark color, is odorless, and is completely water-soluble.

Bioactive Compounds:

Blueberry Fruit Extract (*Vaccinium angustifolium*) contains a wide spectrum of phytochemicals that work synergistically to support healthy skin.

The most significant constituents are **anthocyanins**, natural pigments responsible for the characteristic deep blue color of blueberries. These compounds are powerful antioxidants that protect cells from oxidative damage, strengthen capillaries, and help improve skin microcirculation.

The extract also contains high concentrations of **flavonoids**, particularly **quercetin** and **myricetin**, which exhibit anti-inflammatory, antibacterial, and antioxidant activities.

Naturally occurring **fruit acids**, primarily citric and malic acids, provide mild keratolytic activity by assisting in the removal of dead skin cells and promoting epidermal renewal.

A significant amount of **vitamin C** supports collagen synthesis, helps brighten the complexion, and protects against UV-induced oxidative damage. **Vitamin E**, although

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present in smaller quantities, contributes to cell membrane stabilization and further enhances the extract's antioxidant profile.

Trace levels of **tannins** provide mild astringent and antibacterial effects, helping reduce inflammation and regulate excess sebum production.

This complex phytochemical composition makes Blueberry Fruit Extract particularly valuable in formulations intended for tired, sensitive, and mature skin by simultaneously providing antioxidant protection, revitalization, and support for the skin's natural regenerative processes.

Benefits:

- Protects the skin against oxidative stress through powerful antioxidant activity.
- Helps brighten and even skin tone.
- Supports the natural regeneration and renewal of the epidermis.
- Soothes the skin and helps reduce redness and signs of inflammation.
- Provides gentle exfoliation due to naturally occurring fruit acids.
- Improves microcirculation and strengthens capillaries.
- Hydrates and softens the skin through the synergistic action of glycerin.
- Suitable for all skin types, including sensitive skin.

Recommended Use:

Water-glycerin Blueberry Fruit Extract is suitable for a wide variety of cosmetic formulations due to its potent antioxidant and protective properties. It is preferably incorporated during the **cool-down phase** of formulation to preserve the stability of anthocyanins and polyphenolic compounds.

Recommended use levels include:

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- **Creams and lotions:** 1–5%
- **Serums and anti-aging products:** 3–7%
- **Hair conditioners and hair masks:** 1–5%
- **Facial toners and cleansing gels:** 1–3%

Although the raw material contains an effective preservative system, formulations should ideally be maintained within a **pH range of 4.5–6.5** to preserve both color stability and biological activity.

For external use only.

Safety:

The **Cosmetic Ingredient Review (CIR) Expert Panel**, in its safety assessment published in **2001**, evaluated numerous botanical ingredients, including fruit extracts derived from the *Vaccinium* genus.

The panel concluded that extracts obtained from edible fruits such as *Vaccinium angustifolium* are **safe for use in cosmetic products**, provided they are manufactured according to good manufacturing practices and are free from contaminants such as heavy metals, pesticide residues, and residual solvents.

Typical recommended use levels range between **1% and 10%**, and these extracts are considered safe in both **rinse-off** and **leave-on** cosmetic products. When properly formulated, Blueberry Fruit Extract is regarded as suitable even for sensitive skin, including the delicate eye area.

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Animal Testing:

In accordance with **Regulation (EC) No. 1223/2009 on Cosmetic Products**, this ingredient has **not been tested on animals**.

The safety evaluation is based on available toxicological data, scientific literature, and validated alternative testing methods, including **in vitro** and **in silico** approaches.

The term **in silico** refers to safety assessment methods performed using computer-based models and simulations rather than experiments conducted on living organisms (**in vivo**) or cell cultures (**in vitro**).

This statement confirms compliance with the European ban on animal testing and is provided solely for informational purposes regarding the cosmetic use of this raw material.

GMO: Non-GMO

Vegan: Contains no ingredients of animal origin.

Storage and Shelf Life:

Store in a cool, dry place in tightly closed containers. Shelf life is **2 years** under recommended storage conditions.

Country of Origin: China