

TECHNICAL DATA SHEET

Product Name: Aronia Fruit Extract

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

CAS Numbers: 56-81-5, 7732-18-5, 84650-39-5, 100-51-6, 520-45-6

Botanical Name: Aronia prunifolia

Chemical Classification: Mixture

Functional Category: Active botanical extract with antioxidant, soothing, and protective properties; also functions as a secondary emollient and humectant.

Extraction Method: The extract is obtained using ultrasonic extraction at frequencies between 20 and 25 kHz. These ultrasonic waves generate microscopic cavitation bubbles within the liquid medium containing the plant material. Cavitation creates localized zones of high pressure and temperature as the bubbles implode, mechanically disrupting plant cell walls and releasing intracellular bioactive compounds. This significantly improves extraction efficiency and yield. The process is conducted at 25 °C to preserve thermolabile constituents such as flavonoids, vitamins, and essential oils. Compared to conventional maceration, ultrasonic extraction enables shorter processing times, higher extraction yields, and better utilization of plant material. The resulting extract is preserved with a system approved for use in natural cosmetics: benzyl alcohol (0.86%) and dehydroacetic acid (0.14%), certified by ECOCERT and COSMOS. The extract is water-soluble, allowing for easy incorporation into 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 the need for pH adjustment.

Description: Aronia fruit extract (*Aronia melanocarpa*) is increasingly used in cosmetics for its exceptional antioxidant activity. Aronia is rich in polyphenols, anthocyanins, flavonoids, vitamin C, vitamin E, and many other phytoactive compounds. These components help neutralize free radicals, slow down skin aging, and prevent cell damage caused by UV radiation and environmental pollution. Vitamin C supports collagen synthesis, enhancing skin elasticity and reducing the appearance of fine lines and wrinkles. Anthocyanins, responsible for the fruit's dark color, exhibit anti-inflammatory

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effects, making this ingredient particularly useful for calming irritation, redness, and rashes, ideal for sensitive and inflamed skin. Aronia extract also offers moisturizing properties by helping the skin retain water, resulting in a smooth, hydrated texture. It is commonly used in anti-aging products, serums, creams, and masks, revitalizing tired skin and giving it a refreshed appearance. Thanks to its beneficial properties, it is suitable for dry and mature skin. Aronia also has a mild astringent effect, contributing to pore-tightening and sebum regulation, which makes it beneficial for oily and combination skin. Its natural components strengthen the skin barrier, enhancing resilience against external stressors. When combined with other natural ingredients, aronia extract supports skin health, leaving it protected, hydrated, and radiant. The extract is dark-colored, odorless, and water-soluble, with a pH of 4–6.5.

Bioactive Compounds: Aronia prunifolia fruit extract contains a rich spectrum of phytoactives with potent antioxidant, soothing, anti-inflammatory, and photoprotective properties, making it particularly useful in cosmetic formulations for sensitive, reactive, and mature skin, as well as skin exposed to UV stress and oxidative damage. The most significant group of bioactive compounds in the extract are anthocyanins, plant pigments from the flavonoid class responsible for the fruit's deep purple color. Aronia contains cyanidin-3-galactoside, cyanidin-3-arabinoside, cyanidin-3-glucoside, and cyanidin-3-xyloside. These molecules possess strong radical-scavenging capacity, protect cellular membranes and DNA from oxidative damage, and reduce inflammation induced by UV exposure, pollution, and stress. In addition to anthocyanins, the extract contains numerous flavonols, particularly quercetin, kaempferol, and myricetin, along with their glycosidic derivatives. These compounds strengthen capillaries, improve microcirculation, alleviate redness, and support the repair of the epidermal barrier. They also inhibit enzymes responsible for collagen and elastin breakdown, thereby slowing the signs of photoaging. Notably, the extract is rich in proanthocyanidins, especially oligomeric procyanidins, which further enhance its antioxidant power, synergize with vitamins, and help preserve skin elasticity. These compounds neutralize free radicals, stabilize collagen structures, and increase skin resistance to external aggressors. Phenolic acids such as chlorogenic, neochlorogenic, caffeic, ferulic, and p-coumaric acids provide additional protection against oxidative stress and UV radiation. These acids inhibit lipid peroxidation, soothe inflammation, and protect cellular structures from enzymatic damage. The extract also contains skin-protective vitamins, particularly vitamin C (ascorbic acid) and vitamin E (tocopherols). Ascorbic acid stimulates collagen synthesis, brightens hyperpigmentation, and provides antioxidant protection, while tocopherols stabilize

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membrane lipids and support skin regeneration. The tannin content contributes to astringent effects, helping tighten enlarged pores and tone the skin. Tannins also display mild antimicrobial and anti-inflammatory action, making them especially useful in formulations for oily and blemish-prone skin.

Benefits:

- Rich in antioxidants that protect the skin from oxidative stress and free radical damage.
- Promotes collagen synthesis, reduces wrinkles, and increases skin elasticity.
- Brightens the complexion and reduces the appearance of dark spots and uneven skin tone.
- Soothes irritated skin, reduces redness, and alleviates inflammation.
- Provides hydration, supports the natural barrier, and prevents dryness.
- Offers natural UV protection by enhancing the skin's defense against harmful sun exposure.

Usage: Aronia extract can be used in a wide range of cosmetic formulations, including serums, creams, masks, and lotions. Concentrations typically range depending on product type and desired effects. For serums and creams, a concentration of 1% to 5% is recommended to balance antioxidant efficacy and skin tolerability. In hydrating masks or intensive repair products, concentrations up to 10% can be used, though skin response should be monitored, particularly for sensitive individuals. In sun care formulations, a concentration of 2% to 4% can complement UV filters and provide additional protection. For best results, aronia extract should be used in formulations that do not require heating, to preserve its antioxidant potency. For external use only.

Animal Testing: Not tested on animals

GMO Status: Non-GMO

Vegan Status: Contains no animal-derived ingredients

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