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Chamomile Flower Extract

Product Name: Water-Glycerin Chamomile Flower Extract

INCI Name: Glycerin, Aqua, Chamomilla Recutita Flower Extract, Benzyl Alcohol, Dehydroacetic Acid

CAS: 56-81-5, 7732-18-5, 84082-60-0, 100-51-6, 520-45-6

Botanical Name: *Chamomilla recutita* (German Chamomile)

Synonyms: German Chamomile, Wild Chamomile, *Chamomilla recutita* (L.) Rauschert, *Matricaria recutita* L., Matricaria Flower Extract

Chemical Classification: Mixture

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

Extraction Method: The extract is obtained 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, leading to the 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 essential oil components. Compared to conventional maceration techniques, ultrasonic extraction provides shorter processing times, higher extraction yields, and more efficient utilization of botanical raw materials. 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 incorporation into various water-based cosmetic formulations. 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 of the final formulation.

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Description: Chamomilla Recutita Flower Extract, commonly known as chamomile flower extract, is one of the most widely used botanical ingredients in cosmetics due to its soothing, anti-inflammatory, and regenerative properties. It is obtained by extracting the active constituents from the flowers of *Matricaria recutita*, also known as true chamomile or German chamomile. The presence of flavonoids, including apigenin, quercetin, and luteolin, contributes to its potent antioxidant activity, helping protect the skin from oxidative stress and environmental damage. Bisabolol, one of its principal active compounds, is renowned for its anti-inflammatory and skin-repairing properties, reducing irritation while promoting the recovery of sensitive or damaged skin. The presence of matricin and azulene-related compounds further enhances its soothing action, making this extract particularly valuable in formulations designed to relieve redness, itching, and inflammatory skin conditions. Owing to its gentle yet highly effective properties, chamomile extract is widely used in products intended for dry, sensitive, and problem-prone skin. It is commonly incorporated into lotions, creams, serums, and hair care formulations, where it helps soothe irritated scalp skin while improving hair shine and elasticity. It is also highly valued in baby care products and formulations intended for allergy-prone skin due to its excellent skin compatibility and low irritation potential. In addition to its soothing and regenerative benefits, chamomile extract may contribute to a more even complexion by gently brightening the skin and helping reduce the appearance of hyperpigmentation. Its compatibility with various skin types and cosmetic formulations makes it a versatile ingredient in modern skincare. The extract is light yellow in color, has no pronounced odor, and is water-soluble.

Bioactive Compounds: Chamomile extract is rich in phytochemicals responsible for its soothing, anti-inflammatory, and regenerative properties. Its chemical composition includes various groups of bioactive constituents, particularly flavonoids, sesquiterpenes, phenolic acids, coumarins, and essential oil components. Flavonoids such as apigenin, quercetin, luteolin, and patuletin act as powerful antioxidants while helping reduce inflammatory processes within the skin. Apigenin is particularly recognized for its anti-allergenic and soothing effects, stabilizing cellular membranes and reducing skin sensitivity to irritants. Quercetin and luteolin further strengthen antioxidant protection while minimizing redness and irritation. Sesquiterpenes, particularly bisabolol and matricin, are among the most important compounds responsible for the extract's anti-inflammatory and regenerative activity. Bisabolol helps reduce skin irritation, supports skin regeneration, and exhibits antibacterial activity. Matricin, a naturally occurring sesquiterpene, is converted into chamazulene

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during essential oil distillation, providing additional anti-inflammatory and soothing effects. Although phenolic acids are present in trace amounts, they are not considered the primary active constituents of chamomile extract, as flavonoids and sesquiterpenes remain the dominant bioactive compounds. Coumarins, including umbelliferone and herniarin, are also present; however, their photoprotective role is considered minimal in cosmetic applications. While coumarins from certain plants may cause phototoxic reactions, this effect is not characteristic of chamomile. Essential oil fractions contain azulene derivatives that are not naturally present in the fresh plant but are formed during the distillation process. Chamazulene gives chamomile essential oil its characteristic blue color and exhibits pronounced soothing activity against irritation and redness. Bisabolol oxides are also present in the essential oil and further contribute to its anti-inflammatory effects and skin repair properties. It should be noted, however, that chamazulene and bisabolol oxides are not present in water or glycerin chamomile extracts but are found exclusively in the essential oil. Thanks to this complex phytochemical composition, chamomile extract provides a broad range of skincare benefits, reducing inflammation, protecting against oxidative stress, and accelerating skin regeneration.

Benefits:

- Soothes irritated skin due to the presence of bisabolol and flavonoids.
- Reduces inflammation and redness through the action of sesquiterpenes and flavonoids.
- Provides antioxidant protection by neutralizing free radicals.
- Promotes skin regeneration and supports the repair of damaged tissue.
- Gently brightens the complexion owing to naturally occurring flavonoids and coumarins.
- Exhibits antibacterial properties and helps reduce skin impurities.
- Hydrates the skin and improves elasticity by minimizing moisture loss.

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- Soothes the scalp and may help reduce dandruff and scalp irritation.
- May relieve itching and discomfort associated with sensitive skin.
- Suitable for baby care and allergy-prone skin due to its mild composition.

Directions for Use: Chamomile extract is used in a wide variety of cosmetic formulations. In water-based products such as toners and gels, it is typically incorporated at concentrations between 1% and 5%, providing soothing and anti-inflammatory benefits without overloading the formulation. In emulsions such as creams and lotions, it is used within the same concentration range, where lower concentrations offer preventive care while higher levels are intended to calm irritated skin. In hair care formulations, including shampoos and conditioners, it is generally used at concentrations of up to 5%, helping soothe the scalp while enhancing the brightness of naturally light hair. In micellar waters and facial cleansers, lower concentrations ranging from 0.5% to 3% are recommended to maintain formulation balance and prevent excessive skin dryness. Lower concentrations are also recommended for baby care products and formulations intended for sensitive skin.

Note: Allergic reactions to cosmetic products containing chamomile extract may occur in individuals who are already sensitive to plants belonging to the Asteraceae (Compositae) family. This botanical family includes ragweed, dandelion, calendula, and sunflower, whose pollen or extracts may cause sensitization. Individuals with existing allergies to these plants may experience cross-reactivity because the immune system recognizes similar protein structures and mistakenly reacts to chamomile extract. The most common reaction is allergic contact dermatitis, characterized by redness, itching, burning sensations, or skin rash at the site of application. In rare cases, more severe symptoms, including swelling or systemic allergic reactions, may occur in highly sensitive individuals. Therefore, people with known allergies to Asteraceae plants should exercise caution when using cosmetic products containing chamomile extract. A patch test on a small area of skin is recommended before first use to assess individual tolerance.

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Animal Testing: In accordance with current European legislation (Regulation (EC) No. 1223/2009 on Cosmetic Products), this ingredient 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 testing and assessment methods performed using computer models and simulations rather than living organisms (*in vivo*) or cell cultures (*in vitro*). This statement confirms compliance with the European ban on animal testing and is provided for informational purposes regarding the use of this ingredient in cosmetic formulations.

GMO: Non-GMO

Vegan: Contains no ingredients of animal origin.

Storage and Shelf Life: Stable when stored in a cool, dry place. Approximate shelf life: 2 years.

Country of Origin: China