

TECHNICAL DATA SHEET

Product Name: Aloe Vera Extract

INCI Name: Aqua, Glycerin, Aloe Barbadensis Leaf Extract, Benzyl Alcohol, Dehydroacetic Acid

CAS Numbers: 7732-18-5, 56-81-5, 85507-69-3, 100-51-6, 520-45-6

Botanical Name: Aloe Barbadensis Leaf Extract

Chemical Classification: Mixture

Functional Category: Humectant, emollient, skin conditioning and soothing agent; may also have a mild hair conditioning effect.

Extraction Method: The extract is obtained through ultrasonic extraction using ultrasound at frequencies between 20–25 kHz. At these frequencies, ultrasonic waves create microscopic bubbles in the liquid containing the extract, leading to a phenomenon known as cavitation. Cavitation generates extreme localized pressure and temperature conditions around the imploding bubbles. These conditions mechanically disrupt the plant cell walls, releasing intracellular active components and significantly increasing the extraction efficiency. The process is carried out at 25°C to preserve thermolabile components. This method is more efficient than traditional extraction techniques due to shorter extraction time and better yield. The extract is preserved with benzyl alcohol (0.86%) and dehydroacetic acid (0.14%), a preservative combination permitted in natural cosmetics and certified by ECOCERT/COSMOS. The extract is water-soluble and has a pH between 4 and 6.5.

Description: Aloe Vera Extract is one of the most widely used ingredients in cosmetics due to its numerous beneficial effects on skin and hair. It is derived from the inner leaf gel of Aloe barbadensis Miller, the part richest in bioactive compounds. The extract contains over 75 active constituents, including enzymes such as proteases, amylases, lipases, and cellulases, as well as hormones, saponins, sterols, and lectins. Its strong moisturizing properties stem primarily from polysaccharides that form a protective film on the skin's surface, preventing water loss and reducing exposure to external irritants. Due to its soothing action, it is often used to relieve redness, irritation, and burning sensations, especially on sensitive or inflamed skin. The presence of vitamins, particular-

Disclaimer: The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.

TECHNICAL DATA SHEET

ly vitamins C and E, along with antioxidants, helps neutralize free radicals and promote skin regeneration. Additionally, the extract has mild antimicrobial activity, making it suitable for formulations targeting acne-prone and inflamed skin. In hair care products, Aloe Vera Extract is used for its ability to hydrate the scalp, reduce itching, and give hair shine and softness. Its light texture allows for easy incorporation into various types of cosmetic products, including gels, lotions, creams, toners, shampoos, and conditioners.

Bioactive Compounds: The extract of Aloe barbadensis leaf contains a complex array of bioactive compounds, including polysaccharides, enzymes, vitamins, amino acids, minerals, sterols, phenolic compounds, and other secondary metabolites with anti-inflammatory and regenerative properties. Its primary bioactivity is attributed to the high content of acemannan, a mucopolysaccharide responsible for moisturizing, soothing, and immunomodulating effects. Acemannan, a mannose polymer, is considered the main functional component of aloe. Other polysaccharides present include glucomannans and smaller fragments of galacturonic acid, arabinose, and xylan, which further contribute to the extract's viscoelasticity and moisture-retention capacity.

It contains enzymes such as bradykinase (anti-inflammatory action), aminopeptidases, cellulases, and carboxypeptidases, which help break down dead cells and reduce inflammation in damaged skin. The most prominent vitamins include vitamin C (ascorbic acid), vitamin E (tocopherol), and B-complex vitamins, especially B1 (thiamine), B2 (riboflavin), B3 (niacin), B6 (pyridoxine), and folic acid, which play roles in cell regeneration and antioxidant defense. Beta-carotene, a precursor of vitamin A, is also present.

Aloe vera also contains both essential and non-essential amino acids, such as leucine, isoleucine, valine, methionine, phenylalanine, threonine, lysine, histidine, arginine, glutamic acid, and aspartic acid, all important for tissue repair and regeneration. Minerals present include zinc, magnesium, selenium, calcium, sodium, potassium, manganese, and iron, all of which are vital for enzymatic functions, antioxidant protection, and cellular membrane stability. Among terpenes and sterols, lupeol, campesterol, β -sitosterol, and cycloartanol stand out for their antibacterial, antifungal, and anti-inflammatory activity. Trace amounts of anthraquinones such as aloe-emodin, aloin, emodin, anthracene, and barbaloin may also be present. These have known laxative and antimicrobial properties but are tightly controlled and standardized in cosmetic-grade materials due to their irritant potential. Saponins contribute mild cleansing and antiseptic effects, while salicylic acid adds keratolytic and anti-inflammatory benefits. Thanks to this rich phytochemical profile, Aloe Vera Extract is highly valued in formulations aimed at regeneration, soothing, anti-aging, and restoring sensitive or damaged skin.

Disclaimer: The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.

TECHNICAL DATA SHEET

Benefits:

- Deeply hydrates the skin, leaving it soft, smooth, and radiant.
- Soothes irritation, reduces redness, swelling, and itching ideal for sensitive or damaged skin.
- Promotes cell regeneration and speeds up epidermal renewal, improving skin tone and freshness.
- Stimulates collagen and elastin production, improving skin elasticity and structure.
- Protects the skin from free radicals and reduces the appearance of wrinkles.
- Provides a refreshing and cooling effect, ideal for tired or overheated skin.
- Acts antiseptically, helping to prevent infections and maintain skin hygiene.
- Offers UV protection, helps prevent hyperpigmentation, and functions as a natural solar filter.

Usage Instructions: Aloe vera extract is used in varying concentrations depending on the type of cosmetic product and the intended effect. In moisturizers and lotions, it is typically used at 5–10% to enhance hydration and skin regeneration. In after-sun care products such as gels and sprays, concentrations can go up to 20% for a more pronounced soothing and cooling effect. In facial cleansing products like toners and micellar waters, it is usually included at 1–5%, sufficient to calm the skin without tightness. In shampoos and hair conditioners, it is used at 2–10% to moisturize the scalp and reduce itching. The extract is added to the water phase or after heating to preserve its bioactivity. In cold-process formulations, it is added directly in its gel or liquid form. It can be combined with other hydrating and soothing ingredients for additional benefits. Typical use concentration in skincare formulations ranges from 5% to 10%. It is ideal for use in creams, milks, lotions, toners, gels, aftershave products, lip balms, and decorative cosmetics.

Animal Testing: Not tested on animals

GMO: Non-GMO

Vegan: Contains no animal-derived components

Disclaimer: The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.