

## TECHNICAL DATA SHEET

**Product Name:** Calendula Flower Powder Standardized Lutein 5%

**INCI Name:** Calendula Officinalis Flower Extract

**CAS:** 84776-23-8

**Botanical Name:** Calendula Officinalis Flower

**Product Quality:** The standardized marigold flower extract with 5% lutein is a high-quality botanical raw material obtained through controlled extraction of *Calendula officinalis*. It has a laboratory-confirmed lutein concentration and is characterized by pigment stability, purity, and consistent antioxidant activity, making it a reliable active ingredient for skincare formulations.

**Description:** The standardized marigold flower extract with 5% lutein is a high-grade plant-derived material obtained from the flowers of *Calendula officinalis*, known for its richness in carotenoids, flavonoids, and phytosterols. The extract is produced through a carefully controlled extraction process ensuring a stable and defined lutein content as the main active component. Standardization guarantees that each production batch maintains the same lutein concentration, ensuring reproducible results and consistent performance in formulations. Lutein, a natural carotenoid pigment, exhibits potent antioxidant properties and functions as a biological filter that protects the skin from oxidative stress induced by UV radiation and environmental pollutants. Thanks to these properties, the extract helps preserve skin elasticity and tone, soothes sensitivity and redness, and promotes epithelial tissue regeneration. Its natural golden-yellow color indicates a high carotenoid content, while its mild herbal scent confirms the absence of synthetic residues and solvents. In cosmetic formulations, this extract is used as an active ingredient in creams, serums, lotions, and masks, particularly those intended for sensitive, irritated, or dehydrated skin. Its stability and purity make it suitable for use even in formulations intended for delicate areas, such as the skin around the eyes. Regular use of products containing lutein from marigold enhances skin resilience, restores natural radiance, and helps reduce photoaging effects. The combination of precise standardization, natural origin, and pigment stability makes this extract a reliable choice for formulators seeking high quality, safety, and efficacy in cosmetic preparations.

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**Bioactive Compounds:** Calendula officinalis flower extract is rich in a complex spectrum of bioactive phytochemicals that act synergistically, making it one of the most valued botanical ingredients in cosmetology and phytopharmacy. Its phytocomplex includes carotenoids, flavonoids, triterpenic alcohols, phytosterols, saponins, phenolic acids, and essential oils. Among these, lutein occupies a central position as the main marker of standardization and biological activity. Lutein belongs to the xanthophyll group natural carotenoids with strong antioxidant and photoprotective effects. In skin cells, lutein acts as a physiological light filter, absorbing parts of the visible and UV light spectrum and thus preventing oxidative damage to lipid membranes and proteins. Its ability to neutralize singlet oxygen and free radicals helps preserve collagen and elastin integrity, reduce inflammation, and slow down photoaging. In cosmetics, lutein also serves as a mild toning pigment that restores the skin's natural glow while protecting cellular structures from lipid peroxidation and UV-induced mutations. In addition to lutein, the extract contains other carotenoids such as zeaxanthin,  $\beta$ -carotene, and lycopene, which enhance the overall antioxidant capacity and contribute to its golden hue. Flavonoids like quercetin, isorhamnetin, and rutin strengthen capillaries and soothe sensitive skin thanks to their anti-inflammatory and antioxidant action. Triterpenic alcohols and phytosterols, primarily faradiol, taraxasterol, and stigmasterol, exhibit regenerative and epithelializing properties, promote collagen synthesis, and accelerate the healing of microdamage. Saponins and phenolic acids (e.g., chlorogenic and caffeic) reinforce the anti-inflammatory effect, while a minor content of essential oils provides mild antimicrobial action and a pleasant herbal scent. Thanks to its complex composition, Calendula officinalis extract protects, restores, and soothes the skin, with lutein serving as the main bioactive marker ensuring stability, antioxidant capacity, and efficacy.

### Benefits:

- Soothes irritated and inflamed skin.
- Promotes epidermal regeneration.
- Strengthens the skin's natural barrier function.
- Reduces redness and tightness.
- Protects skin from oxidative stress and external aggressors.
- Restores dry, cracked, or weakened skin.
- Improves tone and enhances skin uniformity.
- Provides mild antiseptic and purifying action.
- Suitable for sensitive areas, including the skin around the eyes.

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**Usage:** Marigold extract is used in cosmetic formulations aimed at calming, regenerating, and protecting the skin particularly sensitive, irritated, or inflamed skin. Due to its powdered form and good water dispersibility, it is typically added to the water phase at low temperatures to preserve the stability of bioactive compounds. The recommended concentration for daily skincare products such as creams, toners, gels, and emulgel serums ranges from 0.5% to 2%, providing effective results without irritation. In rinse-off products such as masks or baths, slightly higher concentrations may be used since contact time with the skin is shorter. Its high tolerance makes it suitable for formulations designed for sensitive areas, including the eye contour and baby care products. The extract combines well with other botanicals with regenerative, hydrating, or anti-inflammatory properties, enhancing the overall efficacy of the formulation. Its natural compatibility and functional stability allow easy incorporation into various cosmetic types without altering texture, color, or scent.

**Animal Testing:** In accordance with EU Regulation (EC) No. 1223/2009 on cosmetic products, this substance has not been tested on animals. Safety assessment is based on available toxicological data, scientific literature, and validated alternative testing methods (in vitro and in silico). In silico refers to computer-based testing and simulation methods rather than laboratory testing on living organisms (in vivo) or cell cultures (in vitro). This note confirms compliance with the animal testing ban and serves informational purposes for further use in cosmetic formulations.

**GMO:** Non-GMO

**Vegan:** Contains no animal-derived components.