

TECHNICAL DATA SHEET

Product Name: Gluconolactone

INCI Name: Gluconolactone

CAS: 90-80-2

Functional Category: Skin conditioning agent, anti-acne agent, chelating agent (sequestrant), stabilizer, preservative

Chemical Class: Polyol

IUPAC Name: D-Glucono-1,5-lactone; (3R,4S,5S,6R)-3,4,5-Trihydroxy-6-(hydroxymethyl)oxan-2-one

Description: Gluconolactone is a polyhydroxy acid (PHA) with multiple skin benefits. It is used for exfoliation, hydration, and antioxidant effects. A derivative of gluconic acid, it naturally occurs in the body as a carbohydrate metabolism byproduct. Due to its molecular structure with multiple hydroxyl groups, it acts gently yet effectively, refreshing and rejuvenating the skin. Often referred to as a "next-generation AHA," Gluconolactone provides benefits similar to alpha hydroxy acids (e.g., glycolic or lactic acid) but with a lower risk of irritation. Its larger molecular structure limits deep skin penetration, making it gentler while remaining effective. This property makes it ideal for sensitive or reactive skin. Suitable for all skin types, including those prone to redness or atopic reactions, it helps remove dead skin cells and promotes renewal. It restores skin radiance and an even tone. Thanks to its water-binding ability, it provides long-lasting hydration and supports the skin's natural barrier function. Its antioxidant properties neutralize free radicals, preventing premature aging, improving elasticity, and reducing the appearance of wrinkles. Gluconolactone protects against pollution and UV radiation and improves skin texture. Commonly used in toners, creams, serums, and masks, it pairs well with hyaluronic acid and niacinamide. It is stable across various pH levels and resistant to oxidation, maintaining effectiveness over time—a key factor in its popularity in the cosmetics industry. Gluconolactone is a white, odorless crystalline powder, easily soluble in water. Its melting point is approximately 150°C. The solution's pH depends on concentration, ranging from slightly acidic to neutral. It integrates well into aqueous bases and remains stable in formulations, even at higher temperatures.

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.

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GRAS (Generally Recognized as Safe) status has been assigned to this ingredient.

Benefits:

- Acts as an exfoliant, removing dead skin cells.
- Provides hydration and helps maintain optimal moisture levels.
- Neutralizes free radicals and prevents premature aging.
- Promotes skin regeneration and improves tone.
- Gentle on sensitive skin, non-irritating.
- Reduces the appearance of fine lines and wrinkles.
- Enhances skin texture, leaving it smooth.
- Supports and strengthens the skin's natural barrier function.
- Compatible with other active ingredients in formulations.
- Does not increase sun sensitivity, making it safe for year-round use.

Usage Instructions: Gluconolactone is used in cosmetic formulations at concentrations typically ranging from 1% to 10%, depending on the product's purpose. Lower concentrations are suitable for mild hydrating and regenerative products like daily creams or toners, while higher concentrations are recommended for exfoliating or intensive care products such as peels and serums. It is most often added to the water phase of formulations due to its water solubility. Stable in formulations with pH values between 3 and 7, it is versatile for various products. For optimal results, combining Gluconolactone with other hydrating or soothing ingredients is recommended. It is frequently paired with sodium benzoate, a traditional preservative, to enhance preservative efficacy. Additionally, it can be combined with other antimicrobial or antifungal agents that rely on low pH conditions, at concentrations of 0.75%–2.0% for such purposes.

Testing on Animals: Not tested on animals

GMO Status: Non-GMO

Vegan Status: Free of animal-derived components

Material Origin: China

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