

TECHNICAL DATA SHEET

Product Name: Glycolic Acid (Hydroxyacetic Acid) 10% Solution

INCI Name: Glycolic Acid

CAS: 79-14-1

Chemical Classification: Carboxylic Acid/Derivative

Functional Category: pH Regulator/Buffering Agent; Exfoliant, Peeling Agent

IUPAC Name: 2-Hydroxyacetic Acid

Description: Glycolic acid is an alpha-hydroxy acid (AHA) widely used in skincare for its exfoliating properties. It is derived from sugar beet, sugarcane, or grapes and is also produced synthetically. This acid aids in removing dead skin cells from the surface, leaving the skin smoother and fresher. It is suitable for treating skin irregularities, hyperpigmentation, and signs of aging. Glycolic acid reduces the appearance of wrinkles, improves skin texture, and evens out the skin tone. Additionally, it helps minimize clogged pores, resulting in a cleaner skin appearance. It is used in low concentrations for daily care, while higher concentrations are applied in controlled treatments. It is a colorless to slightly yellowish liquid with a characteristic odor, highly soluble in water, and is a non-toxic substance. The concentration consists of 10% glycolic acid (90% water), with a pH value of 0.5-2.0.

Mechanism of Action: Glycolic acid weakens the bonds between dead skin cells on the surface, facilitating their removal. It breaks down desmosomes, the protein connections holding corneocytes (dead skin cells) together, enabling easier exfoliation. Through this process, it reduces the thickness of the stratum corneum (outermost skin layer), leading to smoother skin and an even tone. Beyond exfoliation, glycolic acid stimulates the regeneration of new, healthy skin cells. It has been shown to activate fibroblasts, the cells responsible for collagen and elastin production in the skin. By penetrating deeper skin layers, glycolic acid promotes collagen synthesis, enhancing firmness, elasticity, and reducing wrinkles. Additionally, it exhibits anti-inflammatory effects, which help soothe redness and swelling, particularly beneficial for individuals with irritation or acne. Glycolic acid also functions as an antioxidant, neutralizing free radicals that damage skin cells. This protection against oxidative stress slows aging processes and safeguards the

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skin from UV damage and pollution.

Benefits:

- Reduces the appearance of fine lines, wrinkles, and uneven pigmentation
- Minimizes enlarged pores
- Removes the surface layer of dead skin cells (corneocytes)
- Promotes the renewal of skin cell layers
- Increases skin hydration, enhancing the flexibility of the top skin layer
- Leaves skin smooth and radiant with regular use

Use in Cosmetic Products: Glycolic acid is used in concentrations of 5-10% in cosmetic products for daily skincare. Products with a lower pH value contain a higher proportion of AHAs in their active molecular form. European regulations permit a maximum of 10% AHA for personal use, aligning with FDA (Food and Drug Administration) standards. Glycolic acid in lotions, creams, or gels has been highly effective in treating pigmentation issues (melasma, solar lentigines, and post-inflammatory hyperpigmentation) and photoaged skin. Its depigmenting action is attributed to epidermal remodeling, accelerated desquamation, and direct inhibition of melanin formation in melanocytes.

Frequently Asked Questions:

Is it safe to use glycolic acid daily?

Not initially. Glycolic acid may irritate your skin, and it takes time to build tolerance. Start by applying it three times a week. If your skin shows no redness or irritation, increase to four times the next week. Gradually increase usage as your skin adapts. If irritation occurs, pause usage until redness and irritation subside.

Can glycolic acid remove scars?

No. Despite marketing claims, there is no scientific evidence supporting glycolic acid as a scar remover. It may help reduce the appearance of scars but will not eliminate them.

What should I know before using glycolic acid?

Glycolic acid can make your skin more sensitive to sunlight. Always use sunscreen outdoors while using glycolic acid. Avoid combining it with topical retinoids or other exfoliating products. If you are under a dermatologist's care, consult them before using

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glycolic acid.

Chemical Peeling Procedure: Chemical peels using glycolic acid are performed with high concentrations (30-70%) in short treatments under professional supervision. These peels are used for anti-aging, acne, rosacea, and hyperpigmentation treatments. Peels can cause significant irritation if improperly performed (burning, stinging, swelling, erythema, rash, itching, depigmentation). For individuals with sensitive skin, side effects such as stinging, itching, and redness may occur immediately after application. When used at concentrations up to 10% and with a final product pH $\geq 3.5\%$, glycolic and lactic acids, along with their salts and simple esters, are considered safe cosmetic active substances. For professional use, concentrations up to 30% at pH ≥ 3 are deemed safe for short-term interventions by professionals, with thorough rinsing afterward (CIR recommendations). Due to its exfoliating effects, glycolic acid increases skin sensitivity to sunlight, so sunscreen use is recommended, or its use should be limited to autumn and winter months. Glycolic acid is not used in concentrated form but only as a diluted solution.

Animal Testing: Not tested on animals

GMO: Not GMO

Vegan: Contains no animal-derived components

Country of Origin: China

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