

## TECHNICAL DATA SHEET

**Product Name:** Propylene Glycol

**INCI Name:** Propylene Glycol

**CAS Number:** 57-55-6

**Functional Category:** Solvent, viscosity modifier (reduces viscosity), skin conditioning agent (humectant), skin regenerating agent

**Chemical Classification:** Alcohol

**IUPAC Name:** Propane-1,2-diol

**Description:** Propylene glycol is a synthetic organic compound belonging to the group of diols and classified as an alcohol. It functions as a humectant, solvent, and emollient. As a humectant, it attracts and retains moisture from the environment, ensuring long-lasting skin hydration. It also acts as a solvent, aiding in the blending of ingredients in formulations, including active substances and fragrances. Its presence contributes to the homogeneity of the product and helps prevent phase separation, which is crucial for the stability of emulsified systems. Additionally, it acts as a penetration enhancer, enabling active ingredients to reach deeper layers of the epidermis and thereby increasing their effectiveness. It also serves as a stabilizer in formulations, preserving product consistency and freshness. It has a light texture and does not leave a greasy residue on the skin. Suitable for a wide range of products, from creams and serums to toners and shampoos. Although generally safe, it may cause irritation in sensitive individuals, especially at higher concentrations. In cosmetic formulations, it is most commonly used at up to 5%. Propylene glycol is biodegradable and has low toxicity, making it environmentally acceptable. It appears as a clear, low-viscosity liquid, odorless and tasteless, and is water-soluble.

### Benefits:

- Helps retain skin moisture
- Improves skin texture, leaving it smooth and soft
- Facilitates mixing of other ingredients in the formulation

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- Enhances penetration of active ingredients into deeper skin layers
- Prevents formulation separation and improves product homogeneity
- Provides a pleasant, spreadable texture
- Has mild antimicrobial properties that extend product shelf life
- Hypoallergenic and suitable for most skin types
- Applicable in various types of cosmetic products

**Usage:** Propylene glycol is used in cosmetic formulations as a humectant, solvent, and carrier of active ingredients. The concentration depends on the product type and desired effect. In moisturizers and lotions: typically used at 3–5% to support hydration and skin smoothness. In serums and intensive care products: up to 10% for enhanced penetration of active substances. In hair care (conditioners, masks): 1–3% to improve hair hydration and manageability. In decorative cosmetics (powders, foundations): 2–4% to ensure uniform texture and formulation stability. In soaps and shower gels: 2–5% to help retain skin moisture and prevent dryness caused by cleansing. In specific products such as antiperspirants or aftershave lotions: up to 15% for enhanced freshness and hydration. Use should be tailored to the product type and specific needs of the skin or hair, with consideration for its stabilizing and solvent functions. It is part of the aqueous phase of formulations. For external use only.

**Natural or Synthetic Ingredient:** Propylene glycol is a synthetic ingredient. It is chemically synthesized, most commonly from petrochemical sources. There are also "bio-based" versions derived from plant-based glycerol (e.g., corn or sugar syrups), but even these are the result of industrial processing and are not considered natural in a cosmetic context.

**Animal Testing:** Not tested on animals

**GMO Status:** Non-GMO

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

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