

## TECHNICAL DATA SHEET

**Product Name:** Xanthan Gum X 34

**INCI Name:** Xanthan Gum

**CAS Number:** 11138-66-2

**Chemical Classification:** Gum, hydrophilic colloid

**Functional Category:** Viscosity modifier, emulsion stabilizer

**Chemical Formula:**  $C_{35}H_{49}O_{29}$  (monomer)

**Description:** Xanthan Gum X 34 is a high-quality, natural, and vegan variant of xanthan gum, obtained through fermentation of glucose or sucrose by the bacterium *Xanthomonas campestris*. The raw material meets the standards of the food and pharmaceutical industries and is suitable for use in advanced cosmetic formulations. Its structure consists of agglomerated particles—larger, porous granules formed by uniting smaller components without altering the chemical composition. This form allows for rapid and uniform dispersion in water, without clumping and without the need for intensive mixing. It significantly accelerates production and enables stabilization of systems at early formulation stages. It dissolves easily even in cold phases. It exhibits excellent stability in the presence of salts, acids, ethanol, and across a wide pH range. In oil-in-water emulsions, it serves as a reliable stabilizer by preventing coalescence of oil droplets and ensuring long-term homogeneity. Its pseudoplastic behavior allows for smooth and pleasant spreadability, without stickiness, heaviness, or tightness on the skin. Xanthan Gum X 34 forms fully transparent gels, making it ideal for visually appealing products such as serums, fluid emulsions, and gel creams. Even at low concentrations, it provides high viscosity and stable dispersions. Compared to standard xanthan gums, it offers a more pleasant, non-sticky skin feel, which is particularly important in products intended for sensitive areas, such as the area around the eyes. Thanks to all these properties, Xanthan Gum X 34 represents a modern solution for formulators requiring fast preparation, visual clarity, and a high level of sensory comfort.

**Physico-chemical Properties:** Xanthan Gum X 34 is a fine, granulated powder, off-white to slightly yellowish in color, nearly odorless. It dissolves in water forming viscous gels that become pasty when concentrations exceed 5%. This version contains agglomerated

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particles that significantly reduce dustiness and, due to their large surface area, enable extremely rapid and uniform dissolution in water. Solutions made with this gum show good optical clarity, with a transmittance of at least 85%. Particle size corresponds to USS 16 mesh, meaning all particles are smaller than 1180  $\mu\text{m}$ . It complies with European Pharmacopoeia standards regarding the presence of other gums. Xanthan Gum X 34 is stable in the presence of salts, acids, ethanol, and elevated temperatures, making it suitable for broad use in demanding cosmetic formulations. It effectively stabilizes oil-in-water emulsions by preventing droplet coalescence. During formulation, it is recommended to pre-disperse it in glycerol or propanediol to avoid clumping. It is compatible with hyaluronic acid, botanical extracts, surfactants, and emulsifiers. It does not destabilize preservatives and can be used in natural and “clean beauty” formulations. Due to these properties, Xanthan Gum X 34 is an extremely reliable thickener and stabilizer for advanced cosmetic and dermocosmetic products.

**Mechanism of Action:** The mechanism of action of Xanthan Gum X 34 in cosmetic formulations is based on its rheological properties, water-binding capacity, and the stabilization of dispersed systems. Once dispersed in water, agglomerated particles hydrate quickly and release long xanthan polysaccharide chains that spontaneously organize into triple-helical structures. These helices interconnect, forming a three-dimensional network in which water is physically trapped, thereby increasing the system's viscosity. This gel network acts as a physical barrier that prevents sedimentation of particles and phase separation in emulsions and suspensions. It stabilizes oil-in-water emulsions by hindering coalescence of oil droplets and provides pseudoplasticity, i.e., a decrease in viscosity under shear (during application), followed by rapid recovery once shear is removed—enabling easy spreadability without dripping. Owing to these properties, Xanthan Gum X 34 ensures stability and desired texture even in formulations containing strong electrolytes, organic acids, or alcohol. Its high resistance to extreme pH values and heat further contributes to the long-term stability of the product.

### Benefits:

- Rapid hydration in water without clumping
- No need for vigorous mixing during dispersion
- Forms clear, fully transparent gels
- Provides high viscosity even at low concentrations
- Stable across a wide pH range

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- Resistant to salts, acids, and alcohol
- Enables smooth application without a sticky feel
- Shortens production time due to fast preparation
- Does not alter the color, scent, or taste of formulations
- Suitable for visually clean and aesthetically refined products
- Maintains stability at elevated temperatures
- Compatible with a wide range of cosmetic actives
- Does not interfere with preservative efficacy
- Especially recommended for care of sensitive areas, such as the area around the eyes

**Usage Instructions:** Xanthan Gum X 34 is used in concentrations from 0.1% to 1%, depending on the desired viscosity and type of formulation. It is usually dispersed in the water phase with mixing and then left to hydrate without heating, which makes it convenient for non-heated formulations. In serums and tonics, it is used at lower concentrations to achieve a light gel texture, while in creams, emulsions, and gels it may be used at higher concentrations to provide a full and stable structure. In the presence of glycerin, hyaluronic acid, and plant extracts, it enables homogeneous dispersion and stable texture. Thanks to its pseudoplastic behavior, it provides a pleasant sensory experience during application and is a suitable choice for products requiring good spreadability and fast recovery after shear.

**Natural or Synthetic Origin:** Xanthan Gum X 34 is a natural ingredient obtained through biotechnological fermentation of carbohydrates (typically glucose or sucrose) using the bacterium *Xanthomonas campestris*. It contains no synthetic additives and is suitable for natural and vegan formulations.

**Animal Testing:** Not tested on animals

**GMO:** Non-GMO

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

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