Import and distribution for Serbia: Farmadria DOO
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Product Name: Xanthan Gum (standard or so-called turbid version)

INCI Name: Xanthan Gum

CAS: 11138-66-2

Chemical Classification: Gum, heteropolysaccharide, hydrophilic colloid

Functional Category: Viscosity modifier, thickener, emulsion stabilizer, and mild skin conditioning agent.

Chemical Formula: C35H49O29 (monomer)

Description: Xanthan Gum (standard or so-called turbid version) is a natural, vegan, and NON-GMO gum. It is obtained through the fermentation of glucose or sucrose using the bacterium Xanthomonas campestris. In cosmetics, it is primarily used as a thickener and emulsion stabilizer, especially in oil-in-water systems. The turbid version of xanthan gum forms cloudy, opaque gels due to its specific physicochemical structure. It contains larger, non-uniform particles that do not fully dissolve in water but remain dispersed and scatter light. Such colloidal distribution leads to optical turbidity of the system. These grades are often not additionally purified and may retain residues from the fermentation process and cellulose fragments, which further contribute to opacity. For this reason, this type of xanthan gum is not suitable for formulations requiring optical clarity, such as transparent serums, gels, and toners. In contrast, in emulsions such as creams, lotions, and body milks, where transparency is already affected by the presence of oils and emulsifiers, this effect is not significant. In such products, turbid xanthan gum can be successfully used without negatively affecting the aesthetic or functional properties of the formulation.

Physicochemical Properties: Xanthan Gum (Turbid) is a fine powder with a light white to slightly yellowish color, with no pronounced odor and an almost neutral profile. The particle size is below 180 micrometers, allowing uniform dispersion and hydration in the water phase. The viscosity of a 1% solution ranges between 1400 and 1600 cP at room temperature, while the final viscosity of the system depends on pH and the presence of other soluble salts or alcohols.

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It is stable over a broad pH range from 3 to 11 and demonstrates excellent resistance to salts, organic acids, elevated temperatures, and ethanol, making it suitable for formulations containing significant amounts of alcohol.

Mechanism of Action: The function of xanthan gum in cosmetic formulations is based on its ability to form viscous and stable gels even at low concentrations. Its structure consists of long glucose chains with side branches containing mannose and glucuronic acid. These side chains enable interactions with water molecules and other ingredients, resulting in the formation of a three-dimensional network within the aqueous solution. After hydration in an aqueous medium, xanthan gum forms a coherent structure that significantly increases the viscosity of the system, preventing the sedimentation of insoluble particles and phase separation. This effect is especially important in emulsions, where it contributes to stabilization of the oil phase and prevents separation from the aqueous matrix. Formulations containing xanthan gum are characterized by smooth and even application on the skin, with a light sensory feel and without stickiness or heaviness. The raw material exhibits exceptional viscosity stability across a wide pH range, from highly acidic to alkaline conditions, and also maintains its structure at elevated temperatures. This resistance makes it suitable for formulations manufactured using a heated phase, as well as products intended for storage under demanding conditions. One of the important properties of xanthan gum is its excellent compatibility with other hydrophilic thickeners such as carbomers or guar gum. This synergy enables the formulation of textures with different viscosities and rheological profiles, while providing additional system stability. Therefore, xanthan gum is often used as a secondary stabilizer that enhances the performance of primary thickeners and improves the sensory characteristics of the final product.

Benefits:

- Increases product viscosity and improves texture and application feel.
- Creates a network structure that stabilizes emulsions and prevents oil and water separation.
- Keeps solid particles evenly dispersed within the product, preventing sedimentation.
- Forms a thin protective film on the skin, helping retain moisture and reduce water evaporation.
- As a natural ingredient, it is compatible with eco-friendly products and remains

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stable under various pH and temperature conditions.

Directions for Use: Xanthan gum is used in a wide range of cosmetic formulations, with concentrations varying depending on the product type and desired effect. Typical use levels range from 0.1% to 1%. Lower concentrations, from 0.1% to 0.3%, create light gels or provide a mild thickening effect in products such as serums or lotions. In these cases, xanthan gum stabilizes the formulation and improves the texture of the final product. For thicker formulations such as creams or face masks, higher concentrations up to 1% are recommended. In such products, xanthan gum contributes to the formation of a dense, viscous structure that enables even distribution of active ingredients. In products such as exfoliating gels or formulations containing particles, the concentration is adjusted to ensure stable suspension of particles, usually between 0.3% and 0.5%. For proper use, xanthan gum should be slowly dispersed into water or water-soluble phases with constant mixing in order to avoid lump formation. The use of warm water may accelerate dispersion, although xanthan gum also retains its properties in cold-process systems. The addition of up to 0.5% sodium chloride (table salt) may enhance thickening.

Production Method: Produced through fermentation using the bacterium Xanthomonas campestris in bioreactors, where temperature, pH, aeration, and agitation are carefully controlled in order to optimize production conditions.

Animal Testing: This substance has not been tested on animals.

GMO: Non-GMO

Vegan: Does not contain ingredients of animal origin.