Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Maltodextrin

INCI name: Maltodextrin

CAS: 9050-36-6

Synonyms: Dextrin; Hydrolyzed starch; Starch oligosaccharides; Glucose polymer with a low degree of polymerization

Chemical class: Polysaccharide; oligosaccharide obtained by partial hydrolysis of starch

Functional category: Carrier; spray-dried carrier; stabilizer; film former; absorbent; texture modifier

IUPAC name: (1 4)-α-D-glucan (a mixture of oligosaccharides composed of D-glucose units linked by α-1,4 and to a lesser extent α-1,6 glycosidic bonds)

Description: Maltodextrin is a partially hydrolyzed polysaccharide obtained from starch, most commonly corn starch, through enzymatic or acid hydrolysis that breaks long chains of amylose and amylopectin into shorter glucose fragments. Chemically, it represents a mixture of oligosaccharides of varying chain lengths, predominantly with α-1,4 glycosidic bonds and a smaller proportion of α-1,6 bonds. In cosmetic formulations, maltodextrin is primarily used as a technological auxiliary component and carrier for active substances. Its ability to absorb liquid extracts, essential oils, or aromatic components and convert them into a stable powder form makes it highly suitable for producing dry extracts via spray drying. In this way, sensitive plant components are stabilized, their hygroscopicity is reduced, and shelf life is extended. In powder formulations, masks, dry shampoos, or tablet-based cosmetic forms, maltodextrin contributes to uniform distribution of active ingredients and improves flowability. In emulsions and gels, it acts as a mild texture modifier, providing a fuller feel and a slight increase in viscosity without forming a sticky film. On the skin, it forms a thin, lightweight protective layer that may help reduce transepidermal water loss, without creating an occlusive effect. Its molecular weight and hydrophilic nature allow good compatibility with most water-based systems, including formulations without heating, without significantly affecting product pH.

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From a safety perspective, maltodextrin is considered a low-risk ingredient, as it is biodegradable, non-toxic, and widely used in the food industry. In cosmetics, it is used in concentrations that vary depending on function, from a few percent in emulsions to significantly higher levels in dry extracts where it acts as the primary carrier. It is stable over a wide pH range and compatible with most active ingredients, including vitamins, plant extracts, and proteins.

Physicochemical properties: Maltodextrin is a fine, white to slightly creamy powder, with no pronounced odor and a neutral to slightly sweet taste. It is hygroscopic and should be stored in dry conditions in well-sealed packaging. It is fully soluble in water, forming a clear to slightly turbid solution, while it is practically insoluble in alcohol and other organic solvents. It is stable over a wide pH range and under typical processing temperatures. Its molecular weight and DE value below 20 confirm that it is a low-hydrolyzed starch derivative with good compatibility in aqueous systems. In formulations, it contributes to a slightly fuller texture and even distribution of active ingredients, without affecting the odor, color, or stability of the final product.

Benefits:

- Enables stabilization and conversion of liquid extracts and aromatic components into a dry, easy-to-dose powder form.
- Improves uniform distribution of active ingredients in dry and aqueous formulations.
- Enhances stability of sensitive plant extracts, extending their shelf life.
- Improves product texture, providing a slightly fuller and softer skin feel.
- Forms a light protective film that helps reduce moisture loss from the skin surface.
- Facilitates processing and mixing of powder raw materials during production.
- Does not affect odor, color, or stability of the final product.

Method of use: Maltodextrin is a multifunctional auxiliary ingredient used in cosmetic formulations as a carrier, stabilizer, and texture modifier. Due to its good water solubility, it is primarily used in aqueous and semi-solid systems, as well as in powder formulations. In processing, it is incorporated into the water phase with mixing, without the need for heating. It is especially important as a carrier for active components in spray-dried raw materials, where it ensures stability and facilitates incorporation into

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formulations. In powder formulations (masks, powders, dry shampoos), it is used at concentrations of 0.5 to 10%, acting as an absorbent and improving flowability. In gels and serums, it is used at 0.2 to 3%, contributing to slight viscosity increase and formation of a thin film on the skin. In emulsions (creams, lotions), it is used at 0.5 to 5%, providing stabilization and improved texture uniformity. In hair care formulations, it is used at 0.5 to 3%, while in decorative cosmetics it is used at 1 to 5% to improve pigment distribution. Maltodextrin is stable over a wide pH range and compatible with various types of active ingredients. At higher concentrations, it may increase stickiness, which should be considered when developing formulations with a light sensory profile.

Natural or synthetic origin: Maltodextrin is an ingredient of natural origin, obtained through controlled partial hydrolysis of plant starch (most commonly corn, potato, or rice). It belongs to the category of naturally derived ingredients obtained through technological processing rather than full chemical synthesis.

Animal testing: In accordance with current European regulation (Regulation (EC) No. 1223/2009 on cosmetic products), the substance has not been tested on animals. The safety assessment is based on available toxicological data, scientific literature, and validated alternative testing methods (in vitro and in silico). “In silico” refers to testing methods performed using computer models and simulations rather than on living organisms (in vivo) or cell cultures (in vitro). This statement confirms compliance with the ban on animal testing and is provided for informational purposes regarding the use of the raw material in cosmetic formulations.

GMO: Not GMO

Vegan: Does not contain components of animal origin