Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Amodimethicone

INCI: Aqua, Amodimethicone, Trideceth-12, Cetrimonium Chloride

CAS: 7732-18-5, 71750-80-6, 24935-91-8, 112-02-7

Chemical class: Siloxanes and silanes; mixture

Functional category: Conditioner, emollient, film-former (creates a thin film at the site of application)

IUPAC name: α-(3-(2-aminoethylamino)propyl)-ω-hydroxypoly(dimethylsiloxane)

Description: Amodimethicone is an abbreviation of "aminofunctionalized dimethicone". It belongs to the family of modified silicones. It is used in hair and skin care formulations due to its outstanding conditioning properties. In hair care products, it forms a thin protective film that reduces friction between hair strands, facilitates combing and provides protection against external factors. This film reduces static electricity, making the hair more resistant to unwanted frizz and unruly strands. Additionally, amodimethicone provides thermal protection, helping to reduce damage caused by heat styling such as blow-drying, straightening or curling. This makes it particularly suitable for use in products designed for colored and chemically treated hair, as it helps preserve the color and prevents premature fading caused by washing and environmental exposure. In cosmetic formulations, it is often combined with cationic polymers and other surfactants that improve its dispersion in water and ensure even distribution. It is found in a variety of hair care products, including shampoos, conditioners, masks and leave-in serums. Its presence in formulations contributes to a long-lasting smoothing and conditioning effect, improving hair shine and increasing mechanical strength. It appears as a clear to slightly hazy low-viscosity liquid. It spreads easily and distributes well in formulations. The amino and ethoxy groups enhance hydrophilicity, making it more water-compatible than traditional silicones. Its specific gravity is lower than water, which aids dispersion in cosmetic products. Its high refractive index contributes to improved hair shine. Although not fully water-soluble, it disperses easily in the presence of appropriate surfactants and emulsifiers. It is considered one of the most effective silicone polymers for hair conditioning.

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Mechanism of action: Amodimethicone is a modified silicone with a specific chemical structure containing amino groups (-NH_2, -NH) that carry a positive charge. When hair is damaged due to chemical treatments, heat or physical stress, it loses proteins and lipids, resulting in a negatively charged surface. Oppositely charged particles attract, so positively charged amodimethicone bonds to the negatively charged, damaged areas of the hair. This mechanism allows targeted action on damaged sections, while it minimally deposits on healthy areas that lack negative charge. This prevents excessive silicone buildup, allowing the hair to remain lightweight and naturally moveable without feeling weighed down. In formulations containing amodimethicone, additional compounds such as Trideceth-12 and Cetrimonium Chloride are typically present. Trideceth-12 acts as an emulsifier and surfactant, aiding in ingredient dispersion and formulation stability, while also contributing to hair softness and manageability. Cetrimonium Chloride is a quaternary ammonium compound used in hair care products as a conditioning agent and preservative. It provides antistatic effects, reduces hair static buildup, improves combing and contributes to hair feel. It can also function as a surfactant, helping remove impurities and excess oil from the hair and scalp.

Benefits:

- Provides a silky feel in creams and reduces greasiness on the skin.
- Improves hair softness, smoothness and shine.
- Protects hair color and slows down fading.
- Reduces damage caused by heat styling.
- Facilitates combing of both wet and dry hair.
- Increases hair strength and resilience.

Usage: Amodimethicone is used in various cosmetic formulations, most commonly in hair care products. Usage levels depend on the type of product and desired effects. In shampoos, it is added in low concentrations, typically up to 1%, to improve softness without excessive buildup. In conditioners and masks meant for intensive treatment, it is used at higher concentrations, from 1% to 5%, enabling long-lasting smoothing and strengthening effects. Leave-in products such as serums and thermal protection sprays typically contain up to 3% to provide enhanced heat protection and reduce static electricity. It should be properly dispersed in emulsion systems, often combined with emulsifiers such as Trideceth-12 to facilitate even distribution on the hair. It is usually added during the cooling phase, as it does not require heat for incorporation. Combining it

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with cationic surfactants such as Cetrimonium Chloride further improves adherence to the hair, increasing performance and longevity of conditioning effects. For external use only.

Natural or synthetic origin: Amodimethicone is not compatible with natural or eco-certified formulations such as COSMOS or Ecocert, as it is a synthetic ingredient derived through chemical modification of silicon dioxide. It is also non-biodegradable, making it unsuitable for sustainable cosmetics based on plant-derived and eco-friendly ingredients.

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

GMO: Not GMO

Vegan: Does not contain ingredients of animal origin.