

TECHNICAL DATA SHEET

Product Name: Sodium Stearoyl Glutamate

INCI: Sodium Stearoyl Glutamate

CAS: 38517-23-6

Synonyms: L-Glutamic acid, N-(1-oxooctadecyl)-, monosodium salt

Chemical classification: Amino acid

Functional category: Surfactant ~ O/W emulsifier

IUPAC name: Sodium;(4S)-5-hydroxy-4-(octadecanoylamino)-5-oxopentanoate
Sodium hydrogen N-(1-oxooctadecyl)-L-glutamate

Physico-chemical properties: Sodium Stearoyl Glutamate is a compound formed by the reaction between stearic acid, a long-chain fatty acid, and glutamic acid, an amino acid naturally present in the human body. This combination creates a molecule with a hydrophobic part, thanks to stearic acid, and a hydrophilic part, which comes from glutamic acid. Stearic acid, with its long hydrocarbon chain, enables this molecule to bind to oils and lipids in emulsions, which is crucial for its role as an emulsifier. Glutamic acid, on the other hand, possesses carboxyl and amine groups that facilitate bonding with aqueous phases, making the compound water-soluble. The modification of glutamic acid into its sodium salt further enhances water solubility and improves the molecule's function as a surfactant, allowing more efficient interaction with the water phases in cosmetic formulations. Sodium Stearoyl Glutamate has the ability to form lamellar liquid crystalline structures, where the emulsifier molecules organize so that the hydrophilic and lipophilic parts are properly distributed between the water and oil phases. The lipophilic parts are directed toward the oil phase, while the hydrophilic parts orient themselves toward the aqueous phase, creating a layered arrangement resembling liquid layers, known as "lamellar structures." These lamellar structures are essential for stabilizing emulsions, as they reduce surface tension between phases and allow for uniform particle distribution. Additionally, these structures increase skin hydration by acting as a barrier that retains moisture. In creams and lotions, lamellar structures contribute to a silky feel on the skin and provide long-lasting hydration. They form a network that releases water and lipids in a controlled manner, improving the sensory characteristics of the product.

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and giving users a sense of luxury and comfort during use.

Description: Sodium Stearoyl Glutamate is an emulsifier belonging to the class of amino acid-based surfactants, obtained through the condensation process of fatty acids from natural sources, such as vegetable oils, with sodium glutamate. This emulsifier is a mild anionic surfactant, meaning it does not irritate the skin, making it ideal for products designed for sensitive skin. Due to its efficiency at low concentrations, it allows for stable and economical formulations and can be added to either the oil or aqueous phase depending on the formulation's needs. Its ability to form lamellar liquid crystalline structures further enhances the skin feel, making products silky, lightweight, and quickly absorbed. This effect contributes to long-lasting skin hydration, making it an ideal choice for dry and sensitive skin. Additionally, Sodium Stearoyl Glutamate helps reinforce the skin's barrier function by reducing transepidermal water loss, which further protects the skin from drying out. It also has antimicrobial properties, meaning it helps protect cosmetic products from spoilage and reduces the need for additional preservatives, which is especially important for formulations with a minimal number of ingredients. Its use is highly versatile as it can be employed in both cold and hot manufacturing processes, which is important for cosmetic producers. Sodium Stearoyl Glutamate can be used in both O/W (oil-in-water) and W/O (water-in-oil) emulsions, contributing to its broad application in various types of cosmetic products. It is most commonly used in face and body care products such as facial creams, lotions, and sunscreens. Due to its mild nature and emulsifying properties at low doses, it is often used in facial and body cleansing pastes, particularly in cleansing creams that use amino acid-based surfactants. Such products provide gentle yet effective cleansing without skin irritation. This ingredient typically appears as a white solid powder or granules. Its physical properties, such as a high boiling point of 600.3°C and a flash point of 316.8°C, indicate its stability and resistance to high temperatures, making it suitable for various manufacturing processes, whether cold or hot methods are used. Sodium Stearoyl Glutamate, due to its combination of stability, mildness, moisturizing properties, and antimicrobial activity, is a key ingredient in modern cosmetic formulations, particularly those intended for dry and sensitive skin.

Benefits:

- Helps maintain formulation stability by preventing the separation of oils and water.

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- Forms lamellar liquid crystalline structures and increases skin hydration.
- Contributes to a silky and lightweight product texture, improving skin feel.
- Allows creams and lotions to absorb quickly without leaving a greasy residue.
- Ideal for sensitive skin as it does not cause irritation.
- Effective at low concentrations, reducing the need for active ingredients.
- Helps prolong moisture retention in the skin, maintaining its elasticity and softness.

Usage: The use of Sodium Stearoyl Glutamate depends on the type of cosmetic product being made, with its flexibility in formulations being a particular advantage. It can be added to both the oil phase, containing lipophilic (fat-loving) components, and the aqueous phase, containing hydrophilic (water-soluble) components. Using it in different phases of the formulation allows adaptation to manufacturing methods. In hot processes, where oil and water phases are heated to allow better mixing and emulsion formation, Sodium Stearoyl Glutamate can be added to the oil phase to help bind with the aqueous phase during cooling. In cold processes, where the phases are not heated, it can be added to either phase, enabling faster and more economical production without compromising product stability.

Raw material origin: China

Animal testing: The substance has not been tested on animals

GMO: Not GMO

Vegan: Does not contain animal-derived components

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