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TECHNICAL DATA SHEET

Product Name: Glyceryl Stearate SE

INCI Name: Glyceryl Stearate SE

CAS: 11099-07-3

Chemical Classification: Glyceryl ester/derivative

Functional Category: Surfactant – Emulsifier

Description: Glyceryl Stearate SE is a self-emulsifying monoester of glycerin and stearic acid. It is of plant origin, derived from soybean oil. It typically appears as a solid waxy substance in white color but can also be in the form of shiny white flakes, with a mild scent. Due to its self-emulsifying properties, it is poorly soluble in water but soluble in oil and alcohol. Its melting point ranges from 50°C to 60°C. The exact chemical formula may vary as it represents a mixture of compounds. The "SE" designation indicates that it is self-emulsifying, suggesting the presence of added sodium or potassium stearate. It is chemically stable under normal storage conditions and compatible with most cosmetic ingredients. However, it can react with strong oxidizing agents. The pH value of formulations containing Glyceryl Stearate SE can vary widely depending on the overall product formulation. The ingredient itself does not significantly alter pH. Glyceryl Stearate SE has low reactivity, is non-irritating, and safe for use in cosmetic formulations. The HLB value is around 5.8. (The HLB value of regular glyceryl stearate is slightly lower, at 3.8). IUPAC Name: 2,3-Dihydroxypropyl octadecanoate

Benefits:

• ***Emulsifier:*** Glyceryl Stearate SE reduces surface tension and forms stable emulsions. It stabilizes emulsions by forming a physical barrier around oil droplets, preventing their coalescence. It is labeled as "self-emulsifying," meaning it can form an emulsion without the need for additional emulsifiers or surfactants. This ability makes it particularly valuable in product formulation, simplifying the production process and reducing the need for multiple ingredients.

• ***Hydration:*** Glyceryl Stearate SE can help maintain skin hydration by forming a light barrier on the skin's surface. This barrier prevents excessive water loss through the

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epidermis (transepidermal water loss), thereby maintaining skin moisture. Hydrated skin appears plumper, smoother, and has improved elasticity.

• ***Improves Texture and Skin Feel:*** Besides its emulsifying properties, Glyceryl Stearate SE improves the texture of cosmetic products, making them richer and creamier, contributing to a more pleasant application experience on the skin. This enhances user experience and product efficacy. It provides smoothness to the skin, reducing roughness and leaving the skin softer to the touch. This is especially beneficial in products for dry and cracked skin, where softening can significantly improve skin appearance.

• ***Reduces Irritation:*** Glyceryl Stearate SE is considered a mild ingredient, meaning it has a low potential for causing skin irritation. By using such ingredients, skincare products can help reduce existing irritation and prevent potential sensitivity reactions.

• ***Improved Absorption:*** By improving the texture and spreadability of cosmetic products, Glyceryl Stearate SE can enhance the absorption of other ingredients contained in the formulation, potentially increasing their effectiveness.

• ***Plant Origin:*** Glyceryl Stearate SE can be considered a natural ingredient since it is obtained from plant oils and fats. Products containing plant-derived ingredients are often more appealing to consumers seeking natural and environmentally friendly alternatives for their cosmetic products. Plant ingredients are typically well tolerated by the skin, reducing the risk of irritation or allergic reactions, which is especially important in products for sensitive skin. Using plant resources can contribute to sustainability, particularly when raw material sourcing is from sustainable and renewable sources.

Application: Glyceryl Stearate SE is usually added to the oil phase of the formulation as it is oil-soluble. The oil phase needs to be heated to the appropriate temperature, usually between 60°C and 75°C, to completely dissolve Glyceryl Stearate SE. Concurrently with preparing the oil phase, the water phase is also heated to a similar temperature to facilitate the merging of the two phases. Once both the oil and water phases are heated to the appropriate temperature, the oil phase is gradually added to the water phase with constant stirring. Stirring should be vigorous enough to form an emulsion but not too strong to avoid creating too many air bubbles. After forming the emulsion, the mixture is slowly cooled. At this stage, sensitive ingredients that are

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thermolabile or sensitive to high temperatures, such as certain preservatives, fragrances, and active ingredients, can be added. Stirring continues during the cooling process to ensure homogeneity and stability of the final product. The pH value of the formulation can be adjusted after cooling, if necessary, by adding acids or bases. The pH value is important for the stability of the emulsion and product efficacy. Before packaging, the product undergoes quality control to ensure it meets all specifications, including stability, microbiological purity, pH value, and visual characteristics. For products of low to moderate viscosity, such as lotions, Glyceryl Stearate SE is typically used at concentrations of 1% to 3% of the total weight of the formulation. For creams and high-viscosity products, the concentration can be higher, usually between 3% and 5%. In hair care products, such as shampoos and conditioners, the concentration can be lower, often around 1% to 2%, as the main role of the emulsifier in these formulations is to improve the feel on the skin and hair, not to form an emulsion. For specific treatments, serums, and products intended for targeted application, the concentration of Glyceryl Stearate SE can vary significantly depending on the desired effect and texture of the product, and lower concentrations may be used. It's important to note that the optimal concentration for a specific formulation is best determined through experimentation, considering how Glyceryl Stearate SE interacts with other ingredients in the formulation. Factors such as the presence of other emulsifiers, the type and concentration of oils, and the desired final texture and stability of the product, can influence the required amount of Glyceryl Stearate SE.

Usage: Used in the manufacturing of creams and lotions, hair care products, sunscreens, makeup, mascaras and eyeliners, skin cleansing products, micellar waters, lip care products, lip balms, etc.

Source Raw Materials: Soybean oil

Method of Obtaining: Glyceryl Stearate is obtained by reacting glycerin with stearic acid.

Animal Testing: The substance is not tested on animals

GMO: Non-GMO

Vegan: Does not contain animal-derived components