Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Stearic Acid

INCI Name: Stearic Acid

CAS: 57-11-4

Synonyms: 1-Heptadecanecarboxylic Acid; 1-Octadecanoic Acid; Stearophanic Acid; n-Octadecanoic Acid; Cetylacetic Acid; Pearl Stearic

Chemical Classification: Fatty Acid

Functional Category: Surfactant ~ cleansing agent; Surfactant ~ emulsifier, Thickener, Emulsion stabilizer

IUPAC Name: Octadecanoic Acid

Description: Stearic acid is a saturated, long-chain natural fatty acid. It structurally consists of an 18-carbon chain (hence the name octadecanoic acid), with a carboxylic group (-COOH) at the end of the chain. Stearic acid is generally non-reactive due to its saturated nature and long chain. It is stable under most conditions but can react with strong oxidizing agents. As an acid, it can donate a hydrogen ion from its carboxyl group, but it is a weak acid compared to typical mineral acids. It can react with alcohols to form esters. This reaction is often used in the production of soaps and cosmetics. The melting point is about 69.3°C (156.7°F), and the boiling point is 361°C (682°F) at 760 mmHg. It is insoluble in water. Soluble in organic solvents such as ethanol, diethyl ether, and chloroform. At room temperature, stearic acid is a waxy, fatty solid substance. It is colorless and odorless. The density of stearic acid is approximately 0.9408 g/cm³ at 20°C.

Benefits:

• ***Emulsifier:*** Stearic acid has a hydrophobic carbon chain at one end and a hydrophilic carboxylic group (-COOH) at the other. The hydrophilic head of stearic acid attracts water molecules, while the hydrophobic tail bonds with oil molecules. This allows stearic acid to position itself at the interface between oil and water, reducing surface tension and enabling the water and oil phases to mix and stabilize better. Stearic acid forms a micellar structure that stabilizes emulsions by preventing the

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coalescence (merging) of oil droplets. The resulting emulsion remains homogeneous and stable over time.

• ***Thickener:*** In the production process of creams or lotions, stearic acid is heated together with other ingredients to a temperature above its melting point. This allows the stearic acid to melt and homogeneously mix with the other ingredients, forming a uniform emulsion. After the emulsion is formed and homogenized, the cooling process follows. During cooling, stearic acid begins to crystallize. Crystallization creates a solid, thin network within the emulsion that acts as a framework holding the emulsion together, preventing phase separation, and improving product consistency.

• ***Cleansing Agent:*** Stearic acid has cleansing properties that make it effective in removing dirt and excess sebum from the skin. Hence, it is a common ingredient in facial cleansers and soaps.

• ***Conditioning Agent:*** When used in conditioners and lotions, stearic acid helps soften the skin and hair by providing a protective layer that helps prevent moisture loss. This layer also improves skin flexibility and softness.

• ***Skin Protection:*** Stearic acid has a mild occlusive effect, which means it can help protect the skin by forming a barrier on the skin's surface. This barrier can help reduce water loss and protect the skin from external stresses.

• ***Skin Compatibility:*** Stearic acid is generally mild and compatible with most skin types, making it a versatile ingredient in formulations intended for various skin types and sensitivities.

• ***Reduces Product Transparency:*** Due to its white, waxy nature, stearic acid can contribute to the opacity of products. When added to emulsions like creams, lotions, or makeup, stearic acid helps create a creamier and less transparent texture. This makes the product visually more attractive, reducing transparency and creating a richer appearance.

Usage: Used as an emollient and stabilizer. It is mostly used in soap production (helps thicken), as an ingredient in cleansing products, bath preparations, and shampoos. It is part of the fat phase. Heat and melt before use. Typical concentrations range between 2 - 10%. For external use only.

Source Materials: Vegetable fats and oils

Method of Production: Produced from fats and oils through saponification of triglycerides using hot water. The resulting mixture is then distilled.

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Animal Testing: The substance has not been tested on animals

GMO: Non-GMO

Vegan: Does not contain animal-derived components