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TECHNICAL DATA SHEET

Product Name: Cetearyl Alcohol

INCI Name: Cetearyl Alcohol

CAS: 67762-27-0

Chemical Classification: Fatty Alcohol

Functional Category: Surfactant & Emulsifier, Viscosity Modifier (Thickener), Emulsion Stabilizer, Foam Booster, Pearlizing Agent

IUPAC Name: hexadecan-1-ol; octadecan-1-ol

Chemical-Physical Properties: Cetearyl alcohol, also known as cetostearyl alcohol, is a mixture of fatty alcohols primarily consisting of cetyl (16 C) and stearyl alcohol (18 C) and is classified as a fatty alcohol. The molecule of cetearyl alcohol possesses functional groups that enable various effects in cosmetic formulations, such as emulsification, increasing viscosity, and enhancing the aesthetic appearance of products. Thanks to the presence of a hydroxyl group, it acts as a surfactant and emulsifier. The hydroxyl group is hydrophilic, allowing cetearyl alcohol to bind to water molecules, while the long hydrocarbon chain, which is hydrophobic, allows it to bind to oils. This combination of hydrophilic and hydrophobic properties enables cetearyl alcohol to create stable emulsions. In water-in-oil and oil-in-water emulsions, cetearyl alcohol helps maintain the homogeneity of the mixture, preventing ingredient separation. The long hydrocarbon chains of cetyl and stearyl alcohols contribute to cetearyl alcohol's function as an emollient, providing products with a smooth and creamy texture. These chains increase the viscosity of formulations, which is beneficial for creating thick creams and lotions. Additionally, cetearyl alcohol can give products an opaque, milky color, enhancing their aesthetic appearance. Cetearyl alcohol appears as a white, waxy solid substance, in the form of white pellets (Vegarol 1618 50:50 - VVF Limited) or white flakes (Cestopal 1618 50/50). It has a melting point range of 49-59°C, depending on the specific composition of cetyl alcohol (49-56°C) and stearyl alcohol (56-59°C). This mixture is poorly soluble in water but dissolves easily in oils and organic solvents such as ethanol and isopropanol. The density of cetearyl alcohol is about 0.8-0.9 g/cm^3, giving it a light yet stable structure. Thanks to these properties, cetearyl alcohol is often used in cosmetic products, where its waxy consistency contributes to a creamy texture, while its solubility allows

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for easy integration into various formulations. HLB 15.5.

Benefits:

• ***Emulsifier:*** Cetearyl alcohol helps create stable emulsions by combining water and oil. This is particularly important in creams and lotions where a homogeneous mixture that does not separate is needed.
• ***Increases Viscosity:*** Adding cetearyl alcohol to formulations gives products a thick and creamy texture, making them easier to apply and more pleasant to use.
• ***Emollient:*** Contributes to the softness and hydration of the skin. When applied to the skin, cetearyl alcohol forms a protective layer that retains moisture, preventing dryness.
• ***Stabilizer:*** Helps stabilize formulations, preventing ingredient separation and extending product shelf life.
• ***Improves Texture:*** Provides a smooth and luxurious texture to products, enhancing user experience. This is especially important for products like lip balms, face creams, and body lotions.
• ***Reduces Irritation:*** Cetearyl alcohol is mild and less likely to cause irritation compared to other alcohols, making it suitable for use in products for sensitive skin.
• ***Thickening Agent:*** In products such as shampoos and conditioners, cetearyl alcohol helps thicken the formula, making the product easier to apply and giving it a richer consistency.
• ***Foam Booster:*** In cleansing products like shampoos and shower gels, it helps create a rich foam that effectively cleanses the skin and hair.

Usage: Cetearyl alcohol is typically added to the heating phase during the production of creams, lotions, or balms. During emulsion preparation, cetearyl alcohol is melted together with other lipids and oils at a temperature that allows all ingredients to homogenize. The aqueous phase is then slowly added to the oil phase with constant mixing. This process enables the formation of a smooth, homogeneous mixture that does not separate. Cetearyl alcohol is usually used in the range of 0.5% to 10% depending on the type of product and the desired effect. In light lotions, it is used in lower concentrations, while in thicker creams and balms, it can be used in higher concentrations. These concentrations provide optimal stability and texture to the product while offering moisturizing and emollient benefits. In the formulation of shampoos and conditioners, cetearyl alcohol is added in amounts that allow adequate thickening and foam improvement, usually between 1% and 5%. In skincare products,

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TECHNICAL DATA SHEET

such as creams and lotions, it is used to improve texture and provide a protective layer that retains moisture, contributing to long-lasting hydration. Proper use of cetearyl alcohol involves precise measurement and temperature control during production, ensuring that the final product has the desired characteristics and remains stable throughout its shelf life. This ingredient is adaptable and can be combined with various active ingredients and emulsifiers to achieve specific formulation goals, making it a versatile solution for many cosmetic products.

CIR (Cosmetic Ingredient Review) Expert Panel: The CIR Panel is an expert panel of a nonprofit organization established in 1976 to assess the safety of cosmetic ingredients used in personal care products. The CIR Panel consists of experts in toxicology, dermatology, pharmacology, and other relevant scientific disciplines. The panel independently reviews and evaluates scientific data on ingredients to determine if they are safe for use in cosmetics. The results and recommendations of the CIR Panel are published in the CIR Annual Scientific Review, which is available to the public and the industry and serves as a guide for cosmetic manufacturers regarding the safety of the ingredients they use in their products.

The Cosmetic Ingredient Review (CIR) expert panel has assessed the safety of cetearyl alcohol and other similar fatty alcohols. The CIR panel reviewed scientific data and concluded that these ingredients are safe for use in cosmetic products. This opinion was reaffirmed in 2005 after reviewing new available data. Toxicological data for cetearyl alcohol, cetyl alcohol, isostearyl alcohol, myristyl alcohol, and behenyl alcohol showed that these compounds are not toxic. For example, cetyl alcohol is not mutagenic, and formulations containing these fatty alcohols are not skin irritants or sensitizers. The CIR panel stated that the similar chemical structure of these ingredients allows data extrapolation from one alcohol to others, concluding they have equivalent biological activity.

European Regulations: In Europe, cetearyl alcohol and similar fatty alcohols can be used in cosmetics and personal care products if derived from plants, following the general provisions of European cosmetic regulations.

Conclusion: Based on data published by the FDA (Food and Drug Administration) and CIR, cetearyl alcohol and similar fatty alcohols are safe for use in cosmetic products. Their safety is also confirmed by regulatory standards applied to food additives. These

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ingredients are widely accepted and used in the cosmetic industry, with a long history of safe use.

Applications: Used in the manufacture of lotions, creams, hair shampoos, conditioners, bath products, and makeup products.

Source of Raw Materials: Coconut oil and vegetable oils

Production Method: Cetearyl alcohol is a mixture of cetyl alcohol and stearyl alcohol fatty alcohols obtained by catalytic hydrogenation of triglycerides. Cetyl alcohol and stearyl alcohol are derived from vegetable oils, followed by oxidation of the product by growing the ethylene oligomerized chain with the help of a triethylaluminum catalyst.

Origin of Raw Material: Italy

Animal Testing: Substance not tested on animals

GMO: Not GMO

Vegan: Does not contain animal-derived components