

TECHNICAL DATA SHEET

Product Name: Ceteareth 20

INCI Name: Ceteareth-20

CAS: 68439-49-6

Chemical Classification: Alcohol ~ Alkoxylated Alcohol

Functional Category: Surfactant ~ Cleansing Agent, Solubilizer ~ Solubilizing Agent, Emulsifier

Description: Ceteareth-20 is a nonionic surfactant and emulsifier widely used in cosmetic products due to its ability to stabilize UV emulsions (oil-in-water). It is soluble in water, ethanol, and propylene glycol, with a melting point between 40 and 50°C, facilitating its integration into formulations. With an HLB value of 15.3, it is ideal for creating stable emulsions. It also improves the texture and viscosity of products, allowing better distribution and absorption of active ingredients. Ceteareth-20 is stable under normal storage conditions but can react with strong acids and bases, leading to the hydrolysis of ethoxylate groups. It has proven safety for use in cosmetics, as confirmed by the Cosmetic Ingredient Review (CIR) Expert Panel, especially at concentrations up to 11%.

Chemical-Physical Properties: Ceteareth-20 is an ethoxylate of cetyl/stearyl alcohol. It is produced by reacting cetyl and stearyl alcohols with ethylene oxide. The chemical structure of this compound can be described as $R-(OCH_2CH_2)_n-OH$, where R represents cetyl/stearyl alcohol, and n is on average 20, indicating the number of ethylene oxide units. The alkyl chain derived from cetyl or stearyl alcohol is hydrophobic and contributes to the thickening and stabilizing properties of the emulsion. This part of the molecule helps Ceteareth-20 bind to fatty substances, allowing the dispersion of oil in water. The polyethylene oxide chain, consisting of repeated ethylene oxide units, is hydrophilic, providing water solubility and contributing to emulsifying properties. This structure facilitates the formation of stable emulsions by enabling oil and water to mix well. The hydroxyl group at the end of the polyethylene oxide chain allows interaction with water, further contributing to the molecule's hydrophilicity and aiding in the stabilization of the emulsion through the formation of hydrogen bonds with the aqueous phase. The combination of these characteristics allows Ceteareth-20 to function effectively as an emulsifier, solubilizer, and thickener. Ceteareth-20 is in the form of white flakes or waxy

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flakes with a slightly characteristic odor. The melting point ranges between 40 and 50°C, which is relatively low for waxy materials, facilitating its integration into formulations without the need for high temperatures during production.

Benefits:

- **Emulsion Stabilization:** Ceteareth-20 is an excellent UV emulsifier. It helps disperse oil droplets in the aqueous phase, creating a stable emulsion that does not separate.
- **Texture Improvement:** It contributes to a smooth, pleasant texture of products, making them easier to apply and more enjoyable for users.
- **Solubility:** Its solubility in water, ethanol, and propylene glycol allows for easy incorporation of Ceteareth-20 into various formulations, improving product homogeneity and stability.
- **Enhanced Absorption:** It helps in better distribution and absorption of active ingredients into the skin, increasing the efficacy of cosmetic products.
- **Surfactant:** It contributes to foaming and cleansing in products such as shampoos and facial cleansers.

Source Raw Materials: Vegetable oils and ethylene oxide

Method of Production: Vegetable oils are processed into fatty alcohols (mainly cetyl alcohol and stearyl alcohol) which are then ethoxylated with ethylene oxide (the number 20 indicates the number of ethylene oxide molecules attached to cetyl alcohol).

Raw Material Origin: Italy

Animal Testing: The substance has not been tested on animals

GMO: Non-GMO

Vegan: Contains no animal-derived components

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