

TECHNICAL DATA SHEET

Ingredient Name: Cholesterol

INCI Name: Cholesterol

CAS Number: 57-88-5

Chemical Classification: Sterol, Alcohol

Functional Category: Emulsion stabilizer, viscosity modifier ~ increases viscosity, skin conditioning agent

IUPAC Name: (3S,8S,9S,10R,13R,14S,17R)-10,13-dimethyl-17-[(2R)-6-methylheptan-2-yl]-2,3,4,7,8,9,11,12,14,15,16,17-dodecahydro-1H-cyclopenta[a]phenanthren-3

Description: Cholesterol is a sterol (or modified steroid), a type of lipid molecule. It is a vital component of the skin barrier—the natural protective layer that shields the skin from dehydration and external aggressors. As part of the skin's lipid structure, cholesterol accounts for approximately 15% of the total lipid content, making it essential for maintaining the skin's integrity and functionality. When present in sufficient quantities, cholesterol helps retain skin moisture by reducing transepidermal water loss (TEWL). Cholesterol deficiency can compromise the skin barrier, leading to moisture loss and dryness. Topical application of cholesterol through cosmetic products replenishes this deficit, restoring lipid balance and supporting the skin's natural regeneration process. By strengthening the outer layers of the skin, cholesterol enhances its defensive function, making it more resistant to environmental factors like bacteria, pollution, and other stressors. Consequently, cholesterol improves skin hydration and smoothness while promoting overall skin health and resilience. Cholesterol is compatible with other skin lipids, such as ceramides and fatty acids, which together form the foundation of the skin's lipid barrier. In cosmetic formulations, this compatibility creates a synergistic effect that supports better repair of damaged barriers. This is particularly important for dry, irritated, or damaged skin that requires extra support in regeneration. In luxury creams and facial treatments, cholesterol is used not only for its restorative properties but also for its ability to improve product texture. Its presence contributes to a rich, silky feel upon application, an important aspect of premium cosmetics. Additionally, cholesterol facilitates the penetration of active ingredients, such as vitamins, peptides, and antioxidants, enabling them to reach deeper skin layers more effectively.

Disclaimer: The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.

TECHNICAL DATA SHEET

Cholesterol also functions as a stabilizer and homogenizer in emulsions, which are mixtures of oil and water. In oil-in-water (O/W) emulsions, where oil droplets are dispersed in water, and water-in-oil (W/O) emulsions, where water droplets are suspended in oil, cholesterol acts as an emulsifier. It ensures stability and prevents ingredient separation over time, which is critical for maintaining the product's efficacy and aesthetic quality. Cholesterol is used in low concentrations in formulations depending on the product type. It is suitable for a wide range of cosmetic applications, including creams, lotions, lip balms, and hair care products. Its use is particularly valued in anti-aging cosmetics due to its role in skin regeneration and elasticity enhancement. It appears as white granules or powder, insoluble in water but soluble in ethanol, ether, and other organic solvents.

Benefits:

- Softens and smooths skin by filling the spaces between cells.
- Helps retain moisture by forming a protective layer on the skin.
- Promotes regeneration of cell membranes after UV damage.
- Soothes inflammation and reduces redness caused by UV radiation.
- Enhances product efficacy when combined with ceramides and fatty acids.
- Stabilizes emulsions and extends formulation shelf life.
- Safe for use on most skin types, including sensitive skin.

Applications: Cholesterol is incorporated as a crucial ingredient in various cosmetic formulations due to its emollient, stabilizing, and barrier-repair properties. Recommended concentrations vary depending on the product type: Creams and Lotions: Typically used at 0.1% to 1% for optimal skin softening and lipid layer restoration. Sensitive Skin Products: May be used up to 5%, though lower concentrations are preferred to minimize irritation risks. Lip Balms and Eye Care Products: Often below 1% to enhance protective functions and reduce TEWL. Emulsions: Cholesterol stabilizes the system, enabling better integration of oil and water phases, contributing to homogeneity and extending product shelf life.

When combined with ceramides and fatty acids, cholesterol forms a synergistic mixture that effectively mimics the skin's natural lipid barrier, making it ideal for formulations aimed at softening, stabilizing, restoring the lipid barrier, or reducing irritation.

Source Material: Sheep wool

Disclaimer: The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.

TECHNICAL DATA SHEET

Production Method: Extracted and refined from lanolin alcohol, a derivative of sheep wool.

Animal Testing: Not tested on animals

GMO: Non-GMO

Vegan: Derived from sheep wool fat



Disclaimer: The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.