

## TECHNICAL DATA SHEET

**Product name:** Trihydroxystearin

**INCI name:** Trihydroxystearin

**CAS:** 139-44-6

**Chemical classification:** Fats and oils

**Functional category:** Viscosity modifier

**IUPAC name:** 2,3-bis(12-hydroxyoctadecanoyloxy)propyl 12-hydroxyoctadecanoate

**Description:** Trihydroxystearin is an ester formed by the reaction between glycerin (a triol) and hydroxystearic acid, which is derived from castor oil. The resulting product has excellent emollient properties and the ability to thicken emulsions. Trihydroxystearin exhibits thixotropic properties, meaning it can thicken oils (mineral, vegetable, silicone) and aliphatic solvents in a specific manner. When the thickened oil is mixed or subjected to pressure, it becomes less viscous, and when the force is removed, it returns to a thicker state. Trihydroxystearin allows for easy application of cosmetic products and helps maintain their stability. It acts as a skin conditioning agent, softening the skin and forming an occlusive layer that prevents moisture loss. It is also used to control crystallization in formulations containing waxes and fats, helping reduce the formation and bonding of crystals, resulting in a smooth product texture. This ability is particularly useful in products like sticks, lip balms, and rich creams. Trihydroxystearin easily integrates into various formulations due to its compatibility with other lipids and emulsifiers. Its melting point is 85-88°C, it is insoluble in water but soluble in oils. It is approved by Ecocert Greenlife for use in natural and organic cosmetics.

### Benefits:

- Increases product viscosity, making them thicker and easier to apply.
- Improves emulsion stability, preventing ingredient separation over time.
- Softens and hydrates the skin, leaving it smooth and soft.
- Creates a protective layer on the skin that prevents moisture loss.
- Controls crystal formation in formulations, maintaining a smooth product texture.

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- Easily combines with other lipids, allowing for easy integration into various formulations.

**Usage:** As a thickener, Trihydroxystearin is used in creams and lotions at concentrations between 0.5% and 3%. At these doses, it significantly contributes to increasing viscosity, improving skin feel during application, and providing better emulsion stability by preventing separation over time. In these products, Trihydroxystearin also helps maintain skin hydration by creating a thin protective layer that prevents moisture loss. In solid formulations like sticks, lip balms, and solid lotions, it is used at higher concentrations, from 2% to 10%. These higher concentrations allow products to retain their structure and firmness while ensuring smoothness during application. Trihydroxystearin plays a key role in controlling the crystallization of waxes and other fatty components, preventing the formation of large crystals that could negatively affect the product's texture and feel. It is added to the heated oil phase at 55-60°C (130-140°F), then mixed for 10-20 minutes at a certain speed to fully activate. For external use only.

**Animal testing:** The substance has not been tested on animals.

**GMO:** Non-GMO

**Vegan:** Does not contain animal-derived components.

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