Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Polyglyceryl-3 Polyricinoleate

INCI Name: Polyglyceryl-3 Polyricinoleate

CAS Numbers: 29894-35-7, 68936-89-0

Chemical Classification: Glycerol ester/derivative; Natural polymer

Functional Category: Surfactant ~ emulsifier, Viscosity modifier, Skin conditioning agent ~ emollient

Description: Polyglyceryl-3 Polyricinoleate is a complex ester formed by the reaction of polyglycerol-3 and polymerized ricinoleic acid. It is obtained through the esterification of ricinoleic acid—naturally present in castor oil—with polyglycerol. Classified as a natural, plant-derived emulsifier, it functions as an effective non-ionic emulsifier particularly suitable for water-in-oil (W/O) emulsions. This ingredient is compatible with both natural and synthetic oils, fatty alcohols, and waxes, making it ideal for stabilizing formulations with a high lipid phase. It effectively binds water and oil, enabling the formation of stable emulsions with a pleasant sensory feel. It has a mildly occlusive effect and helps reduce transepidermal water loss (TEWL). Due to its mildness and excellent skin tolerance, it is used in sensitive skin care and baby cosmetics. Its presence in creams, lip balms, and ointments confirms its wide applicability in formulations that require a stable W/O structure. Polyglyceryl-3 Polyricinoleate also enhances product texture and stability and supports uniform dispersion of lipophilic actives, potentially improving their bioavailability in the epidermis. It is suitable for natural cosmetic formulations, complies with ecological standards, and can replace synthetic emulsifiers. It is added to the oil phase and mixed with oil-soluble ingredients. Applications include face and body care products, baby care, and sun care formulations. For optimal emulsion stability, combining it with an appropriate thickener is recommended. Polyglyceryl-3 Polyricinoleate is a yellowish, viscous liquid with a neutral odor. It is oil-soluble and not soluble in water. With an HLB value between 3 and 4, it is well-suited for W/O emulsions. It remains stable across a broad pH range (typically 3–8), allowing for flexible use in various cosmetic formulations.

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Benefits:

- Effectively stabilizes water-in-oil (W/O) emulsions
- Increases skin hydration by preventing water loss
- Improves cosmetic product texture and spreadability
- Enhances formulation stability and extends shelf life
- Compatible with oils, waxes, and fatty alcohols
- Suitable for natural cosmetics and eco-certified formulations
- Can replace synthetic emulsifiers
- Ideal for sensitive skin and baby care formulations

Usage: Polyglyceryl-3 Polyricinoleate is used as an emulsifier and stabilizer in cosmetic formulations, typically in concentrations ranging from 1% to 5%, depending on product type and desired texture. In W/O emulsions: 3% to 5% for optimal stability and sensory performance. In creams, balms, and body care: 2% to 4% for effective water-oil binding. In sensitive skin and baby products: usually below 3% to minimize irritation risk. As a co-emulsifier: ~1% when combined with other ingredients to improve texture and stability.It is recommended to add it to the oil phase of the formulation, along with a suitable thickener to achieve the desired viscosity.

Natural or Synthetic Origin: Polyglyceryl-3 Polyricinoleate is a plant-derived ingredient obtained by esterifying polyglycerol and ricinoleic acid from castor oil (Ricinus communis). Polyglycerol is typically produced from plant-based glycerol, while ricinoleic acid is extracted from natural castor seed oil.

Animal Testing: Not tested on animals

GMO Status: GMO-free

Vegan: Does not contain any animal-derived components