

Plantec NATURAL EMULSIFIER OP2

Oil-in-Water – Single Phase Emulsifier



Natural Emulsifier OP2 is an oil-in-water emulsifier. Emulsions can easily be formulated in a single phase.

Imitates the structural and biological properties of the skin.

Ecological, entirely biodegradable, **Natural Emulsifier OP2** is from vegetable origin.

Efficient at low %.

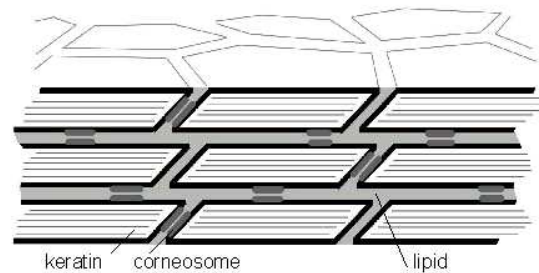
PEG, EO and preservatives free.

Specific molecular organisation

Natural Emulsifier OP2 has the ability to develop a liquid crystal structure in emulsions, by forming a specific arrangement of the micelles along parallel axes.

This structure mimics the Stratum Corneum matrix organisation, often described as a bricks-and-mortar, by creating a multilayer lamellar.

The nature, formation and properties of liquid crystals are described further in G.Dahms "Properties of OW Emulsions with Anisotropic Lamellar phases".

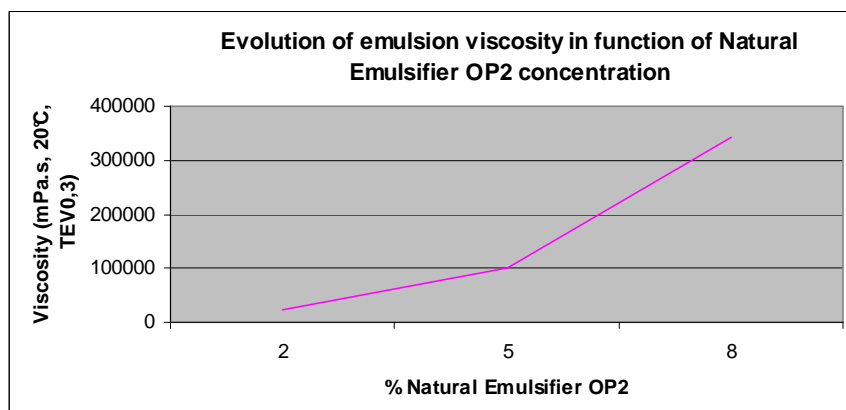


Schematic diagram of the Stratum Corneum

High Power emulsifying

The formation of the liquid crystal structure modifies the physical properties of emulsions; the viscosity and the stability are reinforced by intermolecular forces - Van der Waals forces.

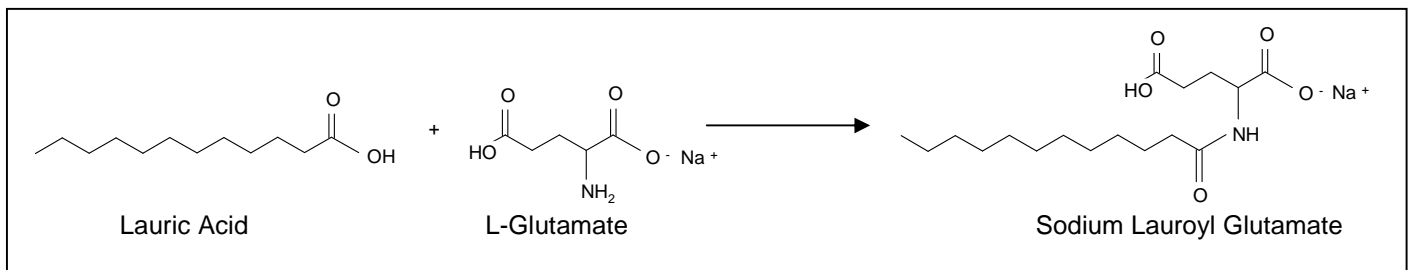
Thus, **Natural Emulsifier OP2** forms stable emulsions in a wide range of pH. It is compatible with the most oil phase polarities. Viscosity of the emulsions can be adjusted by varying the concentration of **Natural Emulsifier OP2**.



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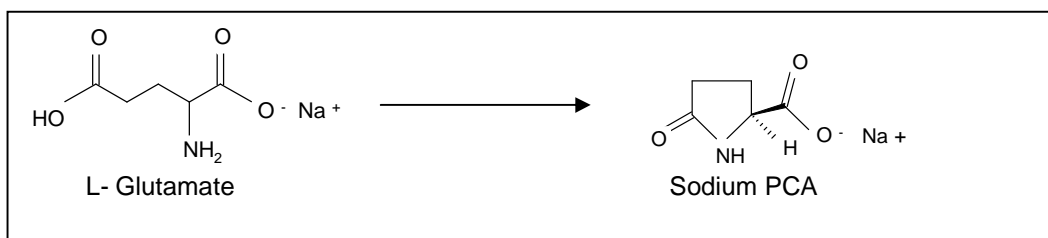
Natural moisturising activity

Natural Emulsifier OP2 contains Sodium Lauroyl Glutamate which comes from a reaction between a natural free fatty acid (Lauric Acid) and a natural aminoacid (L-Glutamate).



Thanks to its two carboxylic groups, L-Glutamate helps the skin to maintain its natural acidity and enters in many metabolic cycles that take place in the epidermis.

L-Glutamate is a precursor of Sodium PCA (Pyrrolidone Carboxylic Acid), an essential component of the Natural Moisturizing Factor (NMF), which is synthesised by the action of the enzymes (L-Glutamate cyclotransferase). Sodium PCA presents hygroscopic property which allows to attract and hold water in the Stratum Corneum. It maintains moisture level in the skin.



Moreover, the lipid extra cellular layer helps to prevent the loss of NMF and is essential for the preservation of the barrier function and the integrity of the Stratum Corneum.

Thus, emulsions obtained with **Natural Emulsifier OP2** present moisturising properties and have functional similarities with the skin lipid system.

Emulsions prepared with **Natural Emulsifier OP2** reinforce the action of the lipid extra cellular layer, due to their molecular organisation and composition.

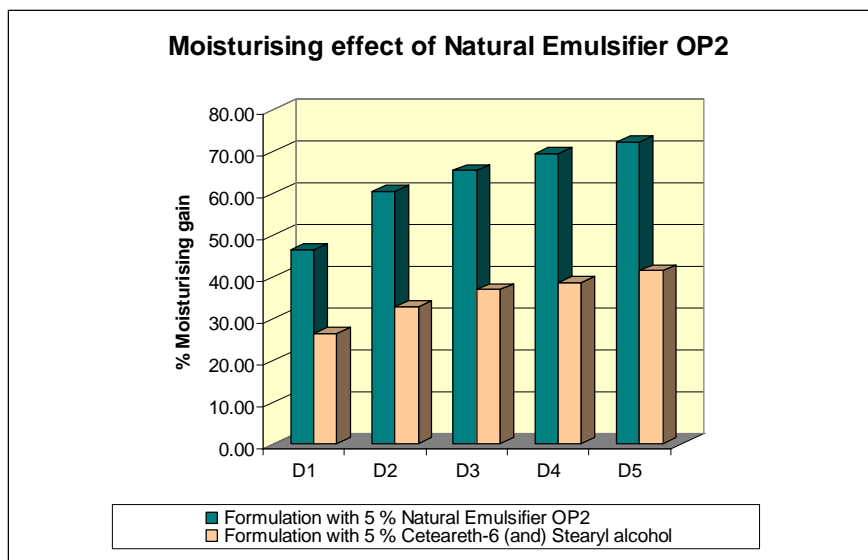
They hold more water and have a long lasting effect on hydration without disrupting their structure. (*Corneometer test*)

They act also on hydration by reducing the Trans Epidermal Water Loss (TEWL) and protect the cutaneous barrier.

Moreover, they facilitate and enhance the delivery of actives.

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Results of in vivo corneometer test on 20 volunteers – 5 days with a single application per day.



Sensorial profile

Finished cosmetic products containing **Natural Emulsifier OP2** present a pleasant skin feel. Emulsions obtained are white, very bright, and leave a very soft finish. Very unctuous, emulsions spread easily on the skin and offer a sensation of extreme comfort and protection.

Very mild and non irritant, **Natural Emulsifier OP2** is well adapted for all types of skin even the most sensitive and reactive.

Cosmetic interest

- Biomimetic emulsifier - structure and activity similar to the skin
- Efficient emulsifying power - provides stable O/W emulsions
- Excellent cosmetic properties - reinforces skin barrier and moisturises the skin
- Pleasant after feel - unctuous texture, soft after feel, very comfortable on the skin
- Compatible with all skin types
- Easy to use on industrial scale - single phase production, cost economy.

Cosmetic applications

- Skin care : moisturising creams, sensitive creams, anti-aging creams....
- Body milk and lotions
- After sun products
- Baby care products

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Process in formulation

Natural Emulsifier OP2 forms oil-in-water emulsions with a single phase.

All ingredients are mixed together. And then, the blend is heated at a temperature of 70 - 75°C.

Melted products are homogenised under a high speed agitation by using a standard propeller stirrer.

If a very fine particle size emulsion is required, this can be obtained by further dispersion using a rotor-stator mixer, during a few minutes.

Recommended dosage level : 2 - 8%

Typical characteristics

Appearance, 20°C	Flakes
Color	Ivory
Odor	Faint, characteristic
Melting range, °C	54 – 64
Acid value	31 – 46
Saponification value	95 - 115
INCI	Glyceryl Stearate (and) Cetearyl Alcohol (and) Stearic Acid (and) Sodium Lauroyl Glutamate
CAS	31566-31-1, 67762-27-0, 57-11-4, 29923-31-7
EINECS	250-705-4, 267-008-6, 200-313-4, 249-958-3
Storage	Store in a cool dry place in original unopened containers.
Shelf life	24 months in original unopened packaging.
Safety	Not considered as hazardous. Refer to SDS.