Natural Emulsifiers and Preservatives Factsheet

We know how important it is for you to use the most natural ingredients possible which is why we’ve created this handy factsheet featuring our 3 favourite natural emulsifiers and preservatives.

Natural Emulsifiers

Oil and water do not naturally mix together, therefore in order to make a cream or lotion which is a blend of oil and water an emulsifier is needed.

Emulsifiers contain a hydrophilic element (water loving) and lipophilic element (oil loving). This means they are attracted to both oil and water which allows them to bind the two together to form a stable mixture.

Here we feature 3 modern, natural emulsifiers made to ecological principles with no petrochemicals or solvents. These are all-in-one emulsifiers that do not require additional or ‘co’ emulsifiers. Their INCI name is used along with the trade name under which it is sold. When searching for these ingredients online use the INCI name as they may be sold under a few different trade names.

1) Xyliance

*INCI* Cetearyl Wheat Straw Glucosides (and) Cetearyl Alcohol

(Accepted by Ecocert)
This emulsifier is made of 100% plant origin where the sugar (xylose) is derived from wheat straw (hence the name) and the fatty alcohols are derived from rapeseed and palm.

This is the ideal emulsifier for beginners because it’s easy to use and creates very stable emulsions.

Perfect for rich cream textures which are non greasy. Very suitable for anti-aging or very hydrating creams.

To be used in the oil phase (70 degrees).

Dosage:
4-5% for a lotion or serum
8% for a cream

2) ECOMulse / Glyceryl stearate SE
INCI: Glyceryl Stearate (and) Cetearyl Alcohol (and) Sodium Stearoyl Lactylate
(Accepted by Ecocert and most organic certifiers)

Derived from Vegetable (coconut, palm and palm kernel) and mineral (potassium).

Another easy to use emulsifier which creates smooth and creamy emulsions. Very versatile, as it helps create a wide range of textures - from milks to heavy creams depending on dosage used.

Imparts an elegant, smooth and cool feeling to formulation making it ideal for oilier/combination skin types, eye contour care, body milks and non greasy creams for the hands and body.
Works in an ideal pH range of 5-7.5 as outside of this pH range can destabilize the emulsion resulting in splitting or separation.

To be used in the oil phase (70 degrees).

Dosage:
3% for a milk with added 0.3% xanthan gum to ensure stability
4% for a serum
5% for a lotion
8% for a cream

The composition of EcoMulse is Glyceryl Stearate, Cetearyl Alcohol and Sodium Stearoyl Lactylate.

Important note: ECOMulse is anionic therefore it is recommended that it should not be used with ingredients that do not mix well with anionic ingredients.

In the UK, where this emulsifier isn’t available as an all in one product, the alternative is to use Glyceryl Stearate (also sold as VE Emulsifier) with Sodium Sodium Stearoyl Lactylate (also sold as MF emulsifier) and Cetearyl Alcohol.

As a guideline use double the amount of Sodium Stearoyl Lactylate compared to Glyceryl Stearate and Cetearyl Alcohol combined.

Glyceryl Stearate added to oil phase. For a cream 3%; for a lotion 1.5%
Cetearyl Alcohol added to oil phase. For a cream 2%; for a lotion 1%
Sodium Stearoyl Lactylate added to water phase. For a cream 5%; for a lotion 2.5%

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3) Olivem 1000

*INCI:* Cetearyl Olivate, Sorbitan Olivate

(Accepted by Ecocert and most organic certifiers)

This emulsifier is derived from natural olive chemistry. It is an emulsifier and thickener in one which is compatible with a wide variety of cosmetic and active ingredients over a wide pH range (3 to 12).

Safe and clinically tested to be hypoallergenic, it provides creams with an excellent moisturising effect and spreadability with a creamy, non oily, cool touch.

Ideal for wrinkle care for both eye contour and face, due to being very emollient and moisturizing.

To be used in the oil phase (70-75 degrees)

Dosage:
- 5% for a serum
- 6% for a lotion or lighter cream
- 8% for a cream

If you have problems with the stability of this emulsifier some suppliers recommend using 5-7% Olivem 1000 with 0.5%-1% Glyceryl Stearate, 1%-4% Cetearyl Alcohol, and 0.2% Xanthan gum to form a stable emulsion.
**Natural Preservatives**

- Cosmetic products need preservation to prevent microbial growth, spoiling of the cosmetic product and potential skin infections.
- Preservatives play a very important function in products containing water; they kill microorganisms and water borne bacteria and prevent the growth of bacteria, mould and yeast.
- If a product contains water (including hydrosols, floral water and aloe vera which all contain water) or will come into contact with water (e.g. a scrub used with wet fingers) a preservative is essential to help prevent microbes growing. Preservatives are not necessary in anhydrous products which are not prone to microbial contamination.
- You will need to use a broad spectrum preservative which means it is effective against bacteria, mould and yeast.

- It’s important to follow the manufacturer’s instructions regarding the amount of preservative to use; too much or too little could be potentially hazardous.
- The only way to know that your preservative working sufficiently is to have a microbiological challenge test carried out by a lab. This is recommended (and in some countries compulsory) if you are selling your products.
- Vitamin E, rosemary extract and grapefruit seed extract are not preservatives.

Here are three broad spectrum preservatives, either derived from natural sources or nature identical, that are readily available, easy to use and carry organic certification:

1) **Preservative Eco**

Other trade names include Mikrokill ECT, Geogard ECT and Plantaserv M.

**INCI:** Benzyl Alcohol (and) Salicylic Acid (and) Glycerin (and) Sorbic Acid

(Meets Ecocert and COSMOS Standards)

This is a broad spectrum preservative which contains four different components: Benzyl Alcohol, Salicylic Acid, Glycerin and Sorbic Acid. All of
these ingredients can be extracted from natural sources such as pine resin, rowan berries and willow bark. It is a non-paraben, non-formaldehyde, non-isothiazolone based preservative system. It also has a low odour profile therefore ideal for fragrance-free systems. Suitable for use in oil-in-water, water-in-oil and water based formulas so compatible with a wide range of skin, hair and sun care formulations.

Available from Aromantic (UK). Also sold as Geogard™ ECT available from Voyageur Soap and Candle Company (USA) and Plantaserv M available from New Directions (Australia).

It’s usually used at 1% in water based products. Not permitted in products for children under the age of 3yrs.

It has a wide pH compatibility of pH 3-8

2) Geogard 221 / Cosgard

*INCI: Benzyl Alcohol (and) Dehydroacetic Acid*

(Meets Ecocert and COSMOS standards, NaTrue Certified and Soil Association approved)

An Ecocert approved, multi-use, broad spectrum preservative system that is a synergistic blend of an organic acid and alcohol that can be added at room and elevated temperatures. Dehydroacetic Acid & Benzyl Alcohol are both organic compounds which are accepted for use in natural cosmetics, offering a broad spectrum of stability at a wide range of pH. The organic preservative compound is a non-paraben, non-formaldehyde, non isothiazolone based preservative system.

Available from Naturally Thinking (UK) and Making Cosmetics (USA) and Go Native (NZ)

It is water soluble with an effective pH from pH 2-7

Typical recommended use level is 0.2-1%
3) Naticide / Plantaserv Q

INCI: Fragrance or Parfum

A broad-spectrum preservative effective against Gram+, Gram -, yeasts and moulds. Naticide is a vegetable derived fragrance that has a sweet vanilla/almond like scent and this remains in the end formulation. This preservative is popular with natural companies in Australia and New Zealand.

It is effective at a pH of 4-9.

Typical recommended use level is up to 0.3- 1% depending on the type of formulation. Up to 0.6% is soluble in water. Further details can be obtained from the supplier Sinerga.

REMEMBER: It is your responsibility to check the efficacy of your preservative system. We strongly recommend having a microbiological challenge test carried out by a lab.

We hope this is useful. Happy formulating and creating!

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P.S. If you’d like to create your own natural or organic skincare range check out our Diploma in Natural Skincare Formulation course here.
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