

SCHOOL of
NATURAL SKINCARE
International

GUIDE TO

*Natural Emulsifiers
and Preservatives*

SCHOOL OF NATURAL SKINCARE



GUIDE TO NATURAL EMULSIFIERS AND PRESERVATIVES

Thank you so much for downloading our guide to natural emulsifiers and preservatives!

We know how important it is to you to use the most natural ingredients possible. We are asked time and time again for recommendations for natural emulsifiers and preservatives, which is why we have created this handy guide featuring three of our favorite of each; most of which are also suitable for use in certified organic products. For recommendations of where to buy the ingredients, please see our recommended supplier list.

We hope the guide is useful. Happy formulating and creating!

Gail and Gareth xox

Directors, School of Natural Skincare

www.schoolofnaturalskincare.com

PS If you would like to learn more about natural emulsifiers and preservatives, and create your own range of natural or organic skincare products, do check out our online [Certificate in Making Natural Skincare Products](#) (our shorter beginners course) and our online [Diploma in Natural Skincare Formulation](#) (our longer and more in-depth formulation course).

NATURAL EMULSIFIERS

WHAT ARE EMULSIFIERS AND WHY ARE THEY USED IN COSMETICS?

A cream or lotion is an emulsion that contains an oil phase and a water phase. As oil and water do not naturally mix together, an emulsifier is needed in order to make a cream or lotion.

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. Note that beeswax is not an emulsifier; it will not create stable emulsions.

THREE NATURAL AND ORGANIC EMULSIFIERS FOR COSMETICS

Here we feature three 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'.

We have included the INCI name 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.

In addition to a reliable emulsifier it is recommended that you also use stabilizers/thickeners in your formula to enhance the stability of the emulsion. For example, you can add 0.2-0.5% xanthan gum to the water phase and/or 2% cetyl alcohol to the oil phase.

1. **Xyliance** (INCI: Cetearyl Wheat Straw Glucosides (and) Cetearyl Alcohol)

Accepted by Ecocert. Sold by The Herbarie (USA) and Huiles et Sens (France) and Alexmo Cosmetics (Germany).

This emulsifier is made of 100% plant origin in which 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 is easy to use and creates very stable emulsions. Perfect for rich cream textures that are non-greasy.

Very suitable for anti-aging or very hydrating creams. It works best with emulsions that have a high oil phase content (about 25%).

To be used in the oil phase (heated to 70°C).

Dosage:

4-5% for a lotion or serum

8% for a cream

2. ECOMulse/NatraMulse/Ritamulse SCG

(INCI: Glyceryl Stearate (and) Cetearyl Alcohol (and) Sodium Stearoyl Lactylate)

Available from Voyageur Soap & Candle (Canada), Bay House Aromatics (UK), Formulator Sample Shop (USA) and Lotioncrafter (USA).

Also sold separately as VE Emulsifier, MF Emulsifier and cetearyl alcohol from Aromantic (UK).

Accepted by Ecocert and most organic certifiers.

Another easy-to-use emulsifier that 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. It is naturally derived from coconut, palm and palm kernel.

Imparts an elegant, smooth and cool feeling to a 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 5.0-7.5. Outside of this pH range can destabilize the emulsion resulting in splitting or separation.

To be used in the oil phase (heated to 70°C).

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

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.

If this emulsifier is not available as an all-in-one product, the alternative is to use glyceryl stearate (also sold as VE emulsifier) with sodium stearyl lactylate (also sold as MF emulsifier) and cetearyl alcohol.

3. Olivem 1000 (INCI: Cetearyl Olivatate, Sorbitan Olivatate)

Accepted by Ecocert and most organic certifiers. Available from most good cosmetic supply stores.

This emulsifier is derived from natural olive chemistry. It is an emulsifier and thickener in one, and is compatible with a wide variety of cosmetic and active ingredients over a wide pH range (3.0 to 12.0).

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

Ideal for wrinkle care for both eye contour and face, as it is very moisturizing.

To be used in the oil phase (heated to 70-75°C).

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, you can try using 5-7% Olivem 1000 with 1-4% cetearyl alcohol or cetyl alcohol, and 0.2-0.5% xanthan gum to form a stable emulsion.



NATURAL PRESERVATIVES

WHEN AND WHY DO YOU NEED TO USE 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 waterborne bacteria, and prevent the growth of bacteria, mold and yeast. If a product contains water (including hydrosols, floral water and aloe vera juice, all of which contain water), a preservative is essential to help prevent microbes growing.

Anhydrous (water-free) products generally do not require preservatives as they are not prone to microbial contamination. This includes products like lip balms and anhydrous whipped body butters. The exception here is an anhydrous product that might come into contact with water (eg a body scrub or a cleansing balm applied with wet fingers). With these types of products you either need to be very careful not to introduce water to the product during use or you should include a preservative.

You will need to use a broad-spectrum preservative, which means it is effective against bacteria, mold and yeast.

It is 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 is 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 broad-spectrum preservatives.



THREE BROAD-SPECTRUM NATURAL PRESERVATIVES FOR COSMETICS

The preservatives in the list below are all approved for use in certified organic products. They are either derived from natural sources or are nature identical.

We have included the INCI name 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. Preservative Eco/Geogard ECT

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

Meets Ecocert and COSMOS standards. Other trade names include Mikrokill ECT and Plantaserv M; available from Aromatic (UK). Geogard ECT is available from Voyageur Soap & Candle Company (USA) and Plantaserv M is available from New Directions (Australia).

This is a broad-spectrum preservative that contains four different components: benzyl alcohol, salicylic acid, glycerin and sorbic acid. These molecules are all found in nature in plants such as pine resin, rowan berries and willow bark. It is a non-paraben, non-formaldehyde, non-isothiazolone based preservative system.

Preservative Eco is a liquid that is added to the cooling phase of a cream. It has a slight almond-like smell that is normally not detectable in the finished product. Over time, benzyl alcohol oxidizes to benzaldehyde, which has a strong almond smell. Suitable for use in oil-in-water, water-in-oil and water-based formulas, so compatible with a wide range of skincare and haircare formulations.

It is usually used at 1% in water-based products.

Not permitted in products for children under the age of three years due to the salicylic acid content.

It is supposed to have a wide pH compatibility of pH 3.0-8.0, but it is most effective at pH below 5.5.

2. Geogard 221 (INCI: Benzyl Alcohol (and) Dehydroacetic Acid)

Meets Ecocert and COSMOS standards, NaTrue certified and Soil Association approved. Available from Naturally Thinking (UK), Making Cosmetics (USA) and Go Native (NZ).

A 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 and benzyl alcohol are both organic compounds that 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.

It is water soluble with an effective pH from pH 2.0-6.0; it is most efficient at pH below 5.5. Typical recommended use level is 0.2-1%.

3. Euxyl K 712/Potassium sorbate and sodium benzoate (INCI: Sodium Benzoate (and) Potassium Sorbate).

Available from Naturallythinking (UK) and The Formulator Shop (Africa).

Ecocert-approved mix of two organic acids (sorbic and benzoic acid) commonly used in preserving foods. It is a liquid cosmetic preservative, which can be used in leave-on as well as in rinse-off products. It was developed for use in cosmetic formulations with a skin-friendly pH value of up to 5.5. It has a broad, balanced spectrum of effect against bacteria, yeasts and molds.

Its activity greatly depends on the pH of the product; the lower the pH, the higher the activity. It is best used at pH below 5.5, ideally around 4.0-4.5.

Usage rates are between 0.5% and 1.5%. It can be added to the heated water phase, but prolonged heating periods (maximum four hours) above 80°C should be avoided.

If you cannot easily obtain Euxyl K 712 you may find it easier to buy sodium benzoate and potassium sorbate individually (they are widely available separately as powders/pellets). As a replacement for 1% Euxyl K 712 you should add 0.2% potassium sorbate and 0.3% sodium benzoate to your formulation. If you choose to add these, they will need to be added to the water phase and heated until dissolved.

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 as this is the only way to be completely sure that your preservative system is effective. You can find more information on product testing here: [Guide to cosmetic product testing and safety assessments](#).



YOUR NEXT STEPS

If you have enjoyed this guide we would LOVE to show you how to make a greater variety of natural skincare products and perhaps even formulate them from scratch too!

Our accredited online courses can take your skills to the next level.





This accredited online course will teach you how to make your own natural and organic cleansers, toners, moisturizers, creams, lotions, balms, body butters, serums, masks, scrubs and more!

The Certificate in Making Natural Skincare Products is useful if you want to create products for yourself, family and friends, and primarily follow recipes rather than creating your own. You will gain a good foundation of knowledge of different types of products, when and why to use preservatives, emulsifiers and antioxidants, and you will get lots of recipes to try out. By the end you will be able to make a complete range of skincare products by following our recipes.

Take a look at the full [Certificate course curriculum](#).



Our accredited, online Diploma in Natural Skincare Formulation teaches you how to create your own unique formulas and products rather than follow recipes. It takes you step-by-step from a blank sheet of paper to developing your own recipes, and into creating your own line of natural skincare products. For people who are ready to learn how to formulate like a pro, the Diploma in Natural Skincare Formulation is the best choice. We take you through the whole process, step-by-step, so even if you have never made a product before, you will understand what goes into them and why.

Our professional and easy-to-use formulation templates and examples mean that even if you are brand new to formulating you can use any of the templates inside the Diploma in Natural Skincare Formulation to create an awesome new product and get it near to perfect the first time.

Whether you want to start a business, take your business to the next level or learn to formulate for your own enjoyment, the Diploma in Natural Skincare Formulation is for you. It provides an amazing opportunity to develop formulation skills, increase your understanding of skin health, function and specific skin types, and build the knowledge necessary to build a brand that is precisely what you wish it to be.

Take a look at the full [Diploma course curriculum](#).




The School of Natural Skincare is a multi-award winning online natural cosmetic formulation school. Our accredited, multimedia online courses cover every aspect of skincare and haircare formulation and are studied from home, wherever our students are in the world, via our online classroom, and with tutor and community support every step of the way.

Founded in 2010 by Directors Gail and Gareth Després, to date the School has trained over 15,000 students in 130 countries to make their own natural and organic skincare and haircare products and launch successful businesses.

The School's team of expert tutors include cosmetic scientists, cosmetic formulators, aromatherapists, beauty business experts and safety assessors, and all are passionate about helping you create beautiful natural cosmetics and thriving businesses.

The School's fabulous formulations and fun, creative classes have been featured by the BBC and glossy magazines like Green Parent, Positive News, Spirit & Destiny, and Country Homes & Interiors.



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