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**CLEAN &**  
**ORGANIC**

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# OPPORTUNITIES FOR NATURAL COSMETICS

Structured triacylglycerols (TAGs) that are organic-certified present a broad range of new applications for the development and formulation of natural cosmetics. Nutriswiss AG, a Swiss company that specialises in the sourcing and processing of vegetable oils and fats, has recently investigated some novel tools and methods to replace palm fat with organic-certified vegetable alternatives such as shea or cocoa butter.

**S**tructured TAGs could potentially play important roles as sustainable and environmentally friendly lipid components in future cosmetics. As such, creative developers of skincare products should challenge fat processors to supply innovative tailor-made TAG solutions and substantiate their competence as leading pioneers for organic-certified and natural innovations.

Palm oil is an excellent functional fat if sourced responsibly. Experts in the procurement of organic raw materials and the establishment of strictly controlled, traceable and sustainable value chains, Nutriswiss only uses and processes RSPO-SG certified palm oil. In the demanding Swiss market, for example, organic certification is essential; thus, Swiss suppliers are compelled to comply with Palmoil Network Switzerland requirements and are strongly committed to organic quality.

Another market driver is that available quantities of organic palm oil are often limited. Customer requests to purchase entire stocks are not unusual. So, in terms of demand alone, it's vital to be able to offer alternative organic-certified solutions to respond to the natural cosmetics industry's need for functional raw materials. Palm fat scores with its technological advantages, but not with its reputation. However, there is light at the end of the tunnel. Thanks to a new process, palm oil-free fats with melting properties that

can be optimised for specific applications can now be developed exactly to the customer's needs. Even the strictest organic quality certifications can be met.

## TAILORED AND SUSTAINABLE FAT SOLUTIONS

At a time when sustainability and ecological responsibility are of the utmost importance, the buoyant natural cosmetics market increasingly needs a secure supply of environmentally friendly oils and fats. Not only is consumer demand for both natural cosmetics and organic quality on the rise, the manufacturing sector is also under pressures to find – and use – alternatives to palm oil and also to coconut oil.

The much-maligned organic palm oil is often used to replace white mineral oil and, together with sunflower and soya oil, comprises a common ingredient in natural cosmetics. Structured TAGs are poised to fill this gap with natural vegetable fats that can be tailored to a wide variety of applications. Until now, only fractionated and/or hydrogenated oils and fats have been utilised to formulate components with higher melting points to prevent them from getting too soft before application to the skin and guarantee the expected consistency even in summer or in hotter cli-



Cocoa butter: the sustainable choice in modern cosmetics.

mates. Their properties can be adapted to deliver the desired characteristics for formats such as creams or body butters.

Palm oil has long been the ingredient of choice in organic products in these categories, whereas tropical fats or waxes are more frequently used in the plant-based sector. Mineral or animal fats are not at all acceptable to consumers of natural cosmetics. Products such as lip balms, for example,

are often based on shea butter; this tropical fat is broadly tolerated by end users as it naturally contains nourishing waxes that complement the application. However, this is very much the exception rather than the rule. No crude oil or fat can be used in a cosmetic formulation without further processing and purification steps. After the certified organic production of oilseeds and oil plants – and the similarly compliant extraction of crude oils where the plants are grown – a structuring process must be applied to achieve the required consistency. This must be done in compliance with all the organic-certification criteria.

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### **IMPROVING PROPERTIES IN AN ORGANIC-CERTIFIED WAY**

Cocoa butter is another good example of a product that combines excellent attributes and is widely accepted by consumers. However, TAGs derived from cocoa butter need to be restructured to achieve higher melting points and a suitable consistency for creams – for which a flat spectrum of solid fat content (SFC) is favoured. It should hardly change during the entire temperature range from 10 to 40°C. Cocoa butter has a very high SFC (Solid Fat Content) level in the range up to 30°C. To achieve the typical properties of cocoa butter, a controlled crystallisation process called ‘conching’ is necessary. This is a purely physical process that does not impact organic certification. It is used

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In organic cosmetic products, certified methods must of course also be used to process the contained oils and fats.

in chocolate production and modifies the crystallisation properties of the treated fat to achieve a more pleasant texture and consistency. However, this process is not easy to handle; it's complex and time-consuming to produce natural cosmetics such as creams, for example. Instead of conching, TAGs can be modified through fat fractionation, hydrogenation of unsaturated fatty acids, or gentle distillation steps to make certain fats suitable and optimise them for new cosmetic applications.

In addition to the mentioned modification steps and depending on the organic label, specialised enzymatic processes can be used to replace certain fatty acids in the TAG molecules with others.

The newly developed process results in products with a desirable crystal profile and simplifies their use in cosmetic formulations wherein the partial hydrogenation of triglycerides – to harden the fat, for example – is not an option according to some organic criteria.

This is why non-tropic vegetable oils have so far been ruled out for use in organic cosmetic products such as lip balms or body butters.

A lot of further research will be necessary to develop organic-compliant processes that mitigate the need to use tropical fats in natural cosmetics in the future. The next steps will be to successfully modify other certified organic fats similarly to achieve higher melting points and allow alternative cosmetic product formulations.

## HOW ORGANIC CONFORMITY IS GUARANTEED

For full conformity with organic rules, enzymatic treatments and distillation are used to produce the structured triglycerides. Particular attention must be paid to the choice of enzymes to guarantee organic quality. Only biocompatible, explicitly authorised non-GMO enzymes from natural sources are permitted. In addition, the production facilities and purification processes must comply with the strictest organic quality standards. In terms of sourcing, establishing secure and traceable supply chains – from the producer to the plant – is essential.

The importance of structured bio-certified triglycerides in the cosmetics industry is expected to increase as potential applications become more apparent. Companies that invest in these sustainable alternatives today will position themselves both as market leaders and pioneers in terms of sustainability and responsibility.



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