

Bioactives

ERYTHRULOSE

The natural
tanning adjunct for
a new dimension
of sun-kissed tan



The category is alive – but many are waiting for improvement

"I love to have a sun kissed tan but I'm afraid that I cannot predict what my skin color will look like when using self-tanning products."

A beautiful golden glow is as quintessentially for summer as the beach itself. However traditional self-tanners have often terrified consumers. As far as skin darkening options, you either had to tan the old fashioned way and get wrinkles, or you could walk around with orange palms and ruddy knees for two weeks until you became pale once more.

But luckily, there's ERYTHRULOSE – the natural tanning adjunct for a new dimension of a sun kissed tan ERYTHRULOSE gives you a beautiful, natural-looking homogenous and glowing skin tone color that enriches the appearance of your skin.

Thus Major customer concerns can be eliminated by combining DHA & ERYTHRULOSE which leads to a more reliable and promising self tanning experience serving today's people's individual beauty aspirations.

Self tanning: a mixture of sensitive expectations and drivers



Functional drivers

- Healthy tanning with less skin drying
- Attractive appearance due to positive tanning effects
- Convenience of application



Emotional drivers

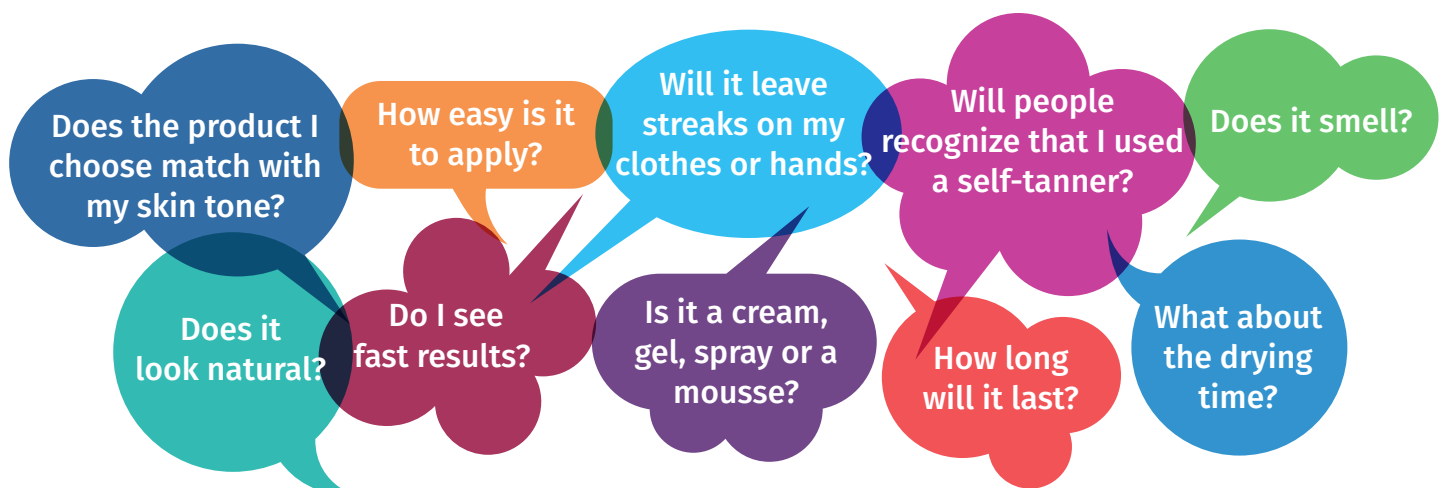
- Self confidence
- Positive reactions of the environment
- Happiness



Expectations

- Control over tan nuances
- Individual, durable effects
- Step-by-step tanning
- 2-in-1 conveniences

It's the consumer who decides if it's **hot** or **not**!



Key facts

UNIQUE PRODUCT FEATURES

- ERYTHRULOSE is produced by biotransformation of erythritol
- ERYTHRULOSE is a clear yellowish viscous fluid of acidic pH (2.0–3.5)
- Perfect formulation adjunction thanks to its gentle mode of action
- Combination of Erythrulose and a reducing sugar with self-browning properties (e.g. DHA) is patent protected

BENEFITS

- Leads to a long lasting, homogenous skin tone
- Helps to overcome known disadvantages such as streaking and skin drying out
- Perfectly compatible with DHA in formulations
- Increases the credibility of self tanning products in the market
- Easy application guarantees utmost application convenience

COSMETIC APPLICATION

- Any kind of self-tanning products in combination with DHA for a natural sun kissed tan
- Gradual self-tanning products in combination with DHA including body lotions and daily moisturizers

SUGGESTED CONCENTRATION

1–3%

INCI NAME

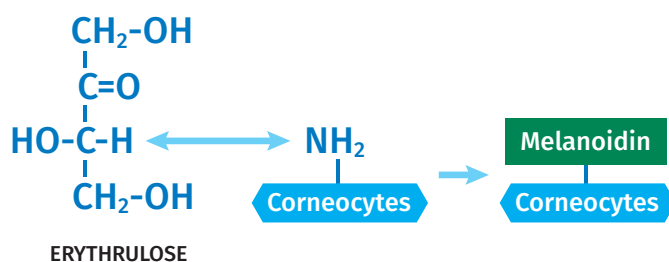
Erythrulose

Mechanism

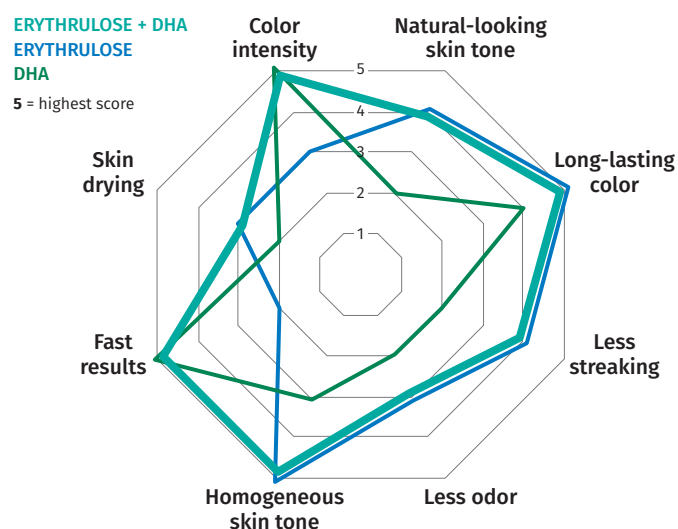
ERYTHRULOSE is a natural keto-sugar which reacts with free primary or second amino groups ("Maillard reaction") in the upper layers of the epidermis. Melanoidins are high molecular weight polymers that are formed by this conversion of ERYTHRULOSE with amino acids, peptides or proteins. Melanoidins are bound to proteins of the stratum corneum mainly via lysine side-chains, their color is comparable to the appearance of natural sun tan.

The impressive properties of pure Erythrulose is a result of the aerobic fermentation of the bacterium *Gluconobacter* followed by several purification steps.

Erythrulose is more stable and has lower reactivity with the proteins in the skin compared to DHA. Although this reduced reactivity is often presumed as a disadvantage, it is indeed an evident benefit. The gentle enduring reaction of Erythrulose protects the skin and leads to a reduced peeling compared with DHA. As a result the tanning of the skin by Erythrulose takes more time but lasts considerably longer. This makes ERYTHRULOSE the modern choice of a formulation adjunction for any kind of DHA formulation.



Efficacy

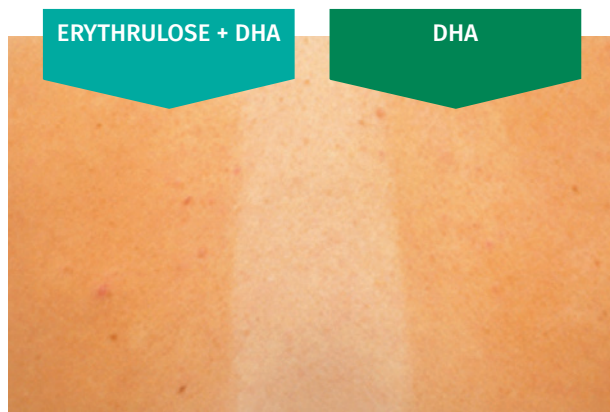


The reaction of ERYTHRULOSE with skin is slow and gentle, which makes it possible to produce a natural, long-lasting, even tan without stripes.

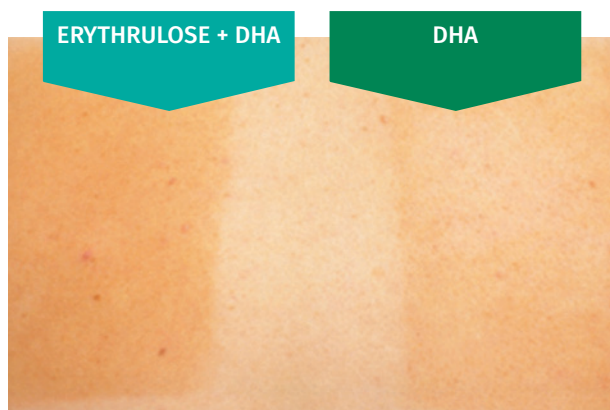
Efficacy *in vivo*

ERYTHRULOSE – the natural, long lasting color enhancer

ERYTHRULOSE was incorporated into a o/w emulsion at 1.5 % in combination with 3.5 % DHA. The formulation has been compared against a 5% DHA formulation. 8 volunteers participated in the 10 days study.



End of application period: Day 10

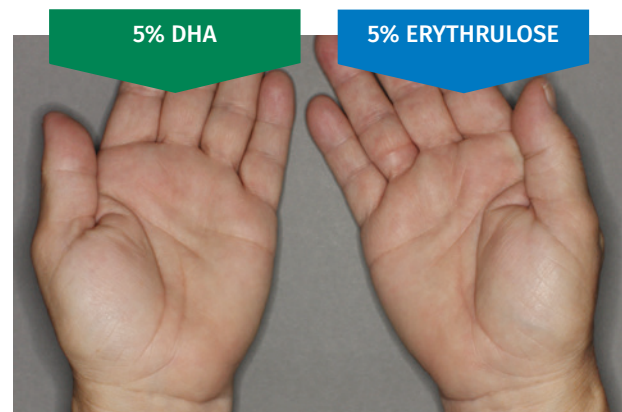


4 days after last application: Day 14

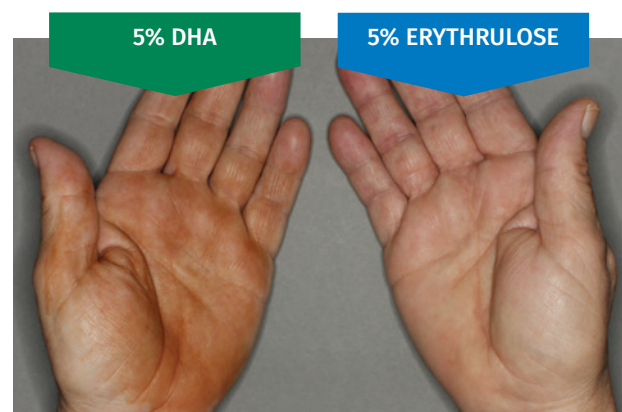
Results: Combination leads to visibly, better results at the end of the application and even more pronounced 4 days after the last application.

ERYTHRULOSE – less coloration of palms

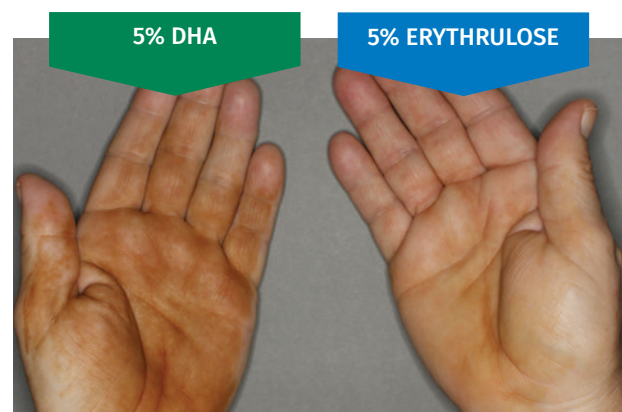
Palm coloration test: 6 healthy volunteers, half side single application of a self-tanning lotion containing ERYTHRULOSE or DHA on Palms.



Upon immediate application



After 6 hours

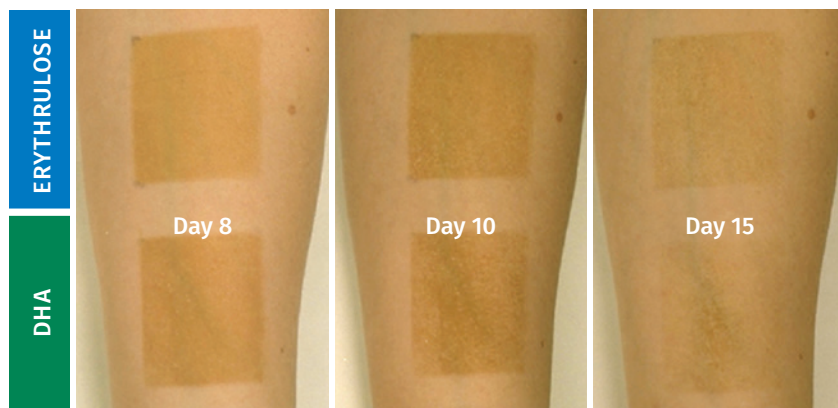


After 9 hours

Results: ERYTHRULOSE clearly improves the application process and reduces negative emotions caused by colored palms.

ERYTHRULOSE – leads to a homogenous skin tone

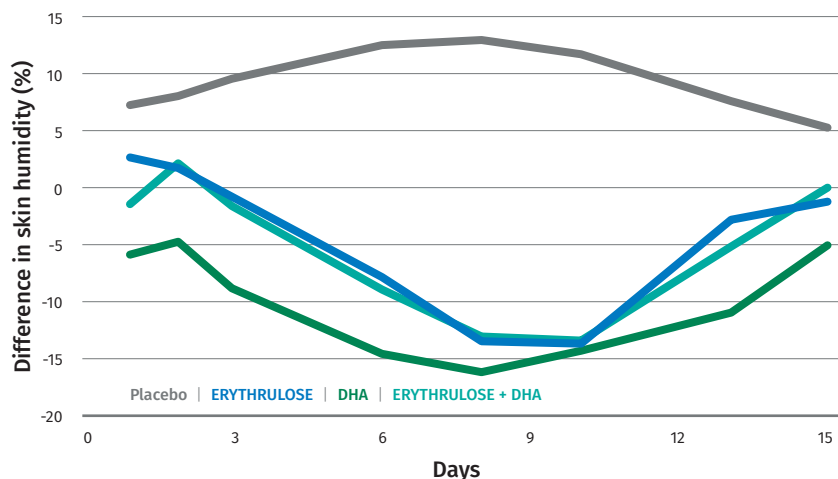
0.5 molar concentration of ERYTHRULOSE (6%) and DHA (4.5%) in a gel formulation have been applied to the skin for 7 days. tanning results have been monitored at day 8, 10, and 15.



Results: Adding ERYTHRULOSE visibly improves the long term benefit of a tanning formulation.

ERYTHRULOSE – diminishes skin drying during tanning treatments

4 gel formulations* were applied during 7 days on the inner forearm of 5 volunteers. Skin humidity has been measured during 15 days.



Results: ERYTHRULOSE improves skin hydration compared to DHA alone. Skin feels better moisture and less dry.

* placebo; 0.5-molar ERYTHRULOSE gel; 0.5-molar DHA gel; 1:1 mixture ERYTHRULOSE / DHA (0.25 molar each)

10 REASONS

TO USE ERYTHRULOSE IN COMBINATION WITH DHA:

- 1 HOMOGENOUS SKIN TONE
- 2 NATURAL AND GRADUAL-LOOKING GLOW
- 3 LONGER-LASTING TAN
- 4 LESS STREAKING APPEARANCE
- 5 MOISTURIZATION
- 6 EASY APPLICATION
- 7 INSTANT BRONZE GLOW
- 8 HIGH STABILITY
- 9 NO BAD SMELL
- 10 PATENT PROTECTION

For more information, please visit www.dsm.com/personal-care

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