Technical Information

Bodyflux® Olive

INTENDED USE

Active for skin care

BENEFITS AT A GLANCE

- Improves epidermal moisturization
- Ceramide complex with skin barrier strengthening properties
- Sustainable production process using organic olive oil with Mediterranean origin
- COSMOS approved

INCI (PCPC NAME)

Ceramide NP

Chemical and physical properties (not part of specifications)	
Appearance	Light amber to amber pellets
Active matter	100%

PROPERTIES

One of the most important tasks of our skin is to act as protective barrier of the body against external aggressions and prevent excessive water loss. The primary skin barrier is the stratum corneum. It consists of a lipid mixture with nearly 50% Ceramides. Ceramides are one of the most important components in stratum corneum lipids which build the mortar for our protecting skin brick wall. It is known that Ceramide levels decline during aging and under specific skin conditions like dry or sensitive skin or even in clinical aspects like atopic dermatitis. Fortunately, it is possible to refill these levels by topical application of skin-identical Ceramides!

With more than 25 years of experience in Ceramide engineering, Evonik has developed Bodyflux® Olive, a Ceramide complex derived from organic olive oil for skin care applications. It is based on an environmentally friendly, biotechnology-based production process. Bodyflux® Olive consists of a broad spectrum of Ceramide NP, with the fatty acid side chain distribution obtained by organic Olive oil.

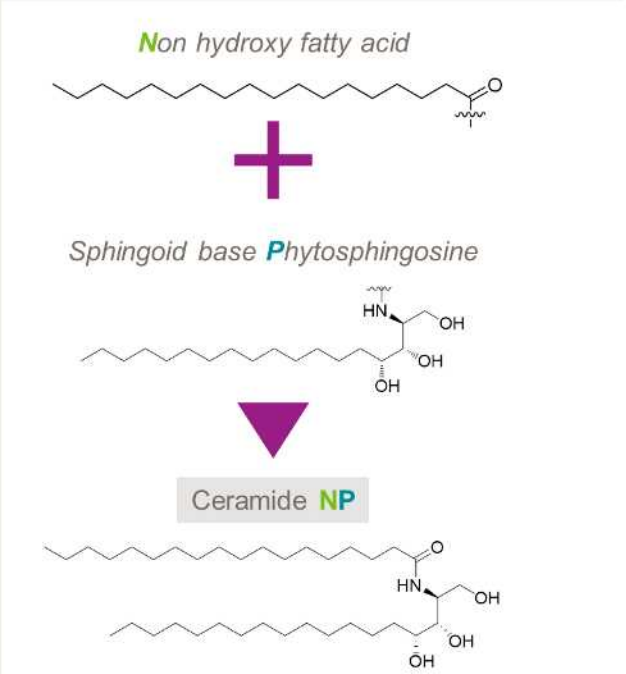


Figure 1: General structure of Ceramide NP

Bodyflux® Olive delivers the known benefits of Ceramide NP as major Ceramide in human skin. It was shown that skin moisturization especially in the stratum corneum and epidermis could be improved by Bodyflux® Olive. In addition, the product is easy to use. The processing temperature of Bodyflux® Olive pellets is around 75–80°C and therefore much lower as common for Ceramides.

Main fatty acids	Chain length	Structure
Oleic acid	C18:1	
Palmitic acid	C16:0	
Linoleic acid	C18:2	
Stearic acid	C18:0	
Palmitoleic acid	C16:1	
Linolenic acid	C18:3	

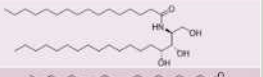
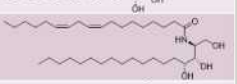
Main Ceramides	Structure
Ceramide C18:1 (Ceramide IIIB)	
Ceramide C16:0	
Ceramide C18:2 (Ceramide IIIA)	
Ceramide C18:0 (Ceramide III)	
Ceramide C16:1	
Ceramide C18:3	

Figure 2: Conversion of Olive oil fatty acids into Ceramides (examples).

IN VIVO EFFICACY

Improved epidermal moisturization

An *in vivo* study was performed in order to investigate effects of Bodyflux® Olive on people with dry skin.

For this study 30 men and women aged between 19 and 62 years with self-assessed dry skin were recruited. The study was conducted in winter time. The panelists applied the test emulsions twice daily for 4 weeks on the inner forearm. The test formulation was an O/W emulsion containing either 0.2% Bodyflux® Olive or no active ingredient (vehicle). Untreated skin served as control. The study was designed as a half-side test in an incomplete block-design.

Test formulation for in vivo study (AS 2049)		
Phase A		
AXOL® C 62 Pellets (Glyceryl Stearate Citrate)	2.00%	2.00%
TEGO® Alkanol 1618 (Cetearyl Alcohol)	1.00%	1.00%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	4.50%	4.50%
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	4.50%	4.50%
Bodyflux® Olive (Ceramide NP)		0.20%
Phase B		
Water	85.90%	85.70%
Phase C		
Carbomer (Carbomer Homopolymer A)	0.20%	0.20%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	0.80%	0.80%
Phase Z		
Verstatil PC (Phenoxyethanol; Caprylyl Glycol)	1.00%	1.00%
Perfume	0.10%	0.10%
Sodium Hydroxide (10%)	**q.s.**	**q.s.**

Before the application started (baseline) and after 4 weeks, skin moisturization was measured using MoistureMeter probes (Delfin Technologies Ltd.). The MoistureMeterSC measures skin surface hydration values at stratum corneum level. With the MoistureMenterEpiD hydration changes down to the epidermal level can be determined.

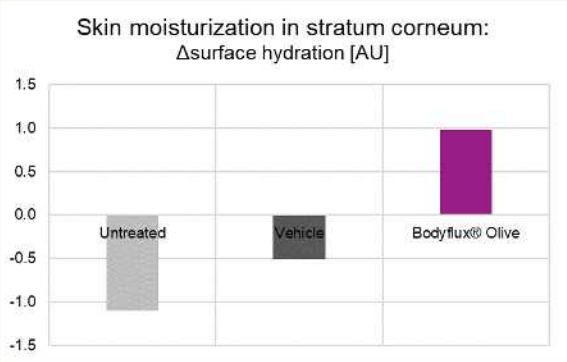


Figure 3: Increase stratum corneum moisturization after application for 4 weeks.

Hydration in the surface layer of the skin, stratum corneum (SC), gives important information on the biophysical properties and function of the skin barrier. Figure 1 shows the positive effect of Bodyflux® Olive after 4 weeks of application. The measured surface hydration could be improved compared to the start value. The vehicle formulation had no positive effect.

The improvement of skin surface moisturization goes in line with a higher water content even in the deeper epidermal skin layers. Figure 2 shows epidermal moisturization measured with the MoistureMeterEpiD probe. The application of Bodyflux® Olive over a period of 4 weeks leads to a significantly improved moisture level compared to the start value. The vehicle effect is on the base level of untreated skin.

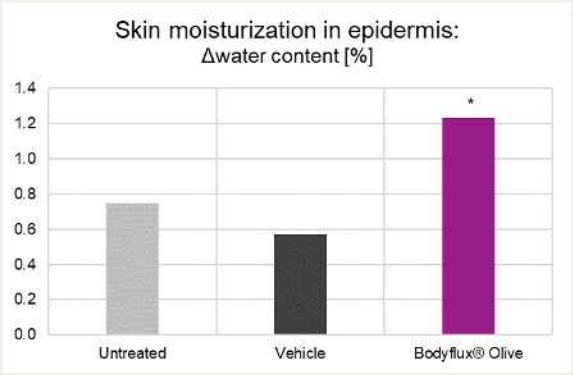


Figure 4: Increase epidermal moisturization after application for 4 weeks (* $p < 0.05$, compared to start).

Overall, Bodyflux® Olive leads to an adequate amount of water in the stratum corneum and epidermal layers of the skin and helps to maintain its intact barrier function. The skin feels soft and flexible and looks smooth and healthy.

PREPARATION

Bodyflux® Olive is soluble in oils at elevated temperature (75–80 °C).

Preparation of O/W emulsions: Bodyflux® Olive is stabilized/solubilized by the lamellar phase of an O/W emulsion. Therefore, the composition of the oil phase is not crucial. It is very important that Bodyflux® Olive is clearly and completely solved in the hot oil phase at the beginning of and during the homogenization step. The water and the oil phase should have a similar temperature.

Formulation without lamellar phases (for example W/O): Bodyflux® Olive can only be stabilized via its solubility in the oil phase.

Processing temperature of Bodyflux® Olive: 75–80 °C

RECOMMENDED USAGE CONCENTRATION

0.1–0.5% (clinically tested at 0.2%)

APPLICATIONS

- Moisturizing body products
- Protecting Hand & Foot Care
- Nature-oriented Skin Care

GUIDELINE FORMULATIONS

If you are interested in guideline formulations please visit our homepage https://personal-care.evonik.com.

HAZARDOUS GOODS CLASSIFICATION

Information concerning

- classification and labelling according to regulations for transport of chemicals
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicological and ecotoxicological effects

is given in our safety data sheets.

A 04/20

Evonik Nutrition & Care GmbH
Goldschmidtstraße 100
45127 Essen, Germany
Phone +49 201 173 2546
Fax +49 201 173 712546
personal-care@evonik.com
www.evonik.com/personal-care

EVONIK
Leading Beyond Chemistry