



# DSM PEPHA<sup>®</sup> CB RANGE

The power of algae  
for healthy-looking skin



**DSM**

BRIGHT SCIENCE. BRIGHTER LIVING.



CLICK ON  
THE MENU BAR  
TO DISCOVER MORE



ALGAE, A MAJOR  
SKINCARE  
TREND

DISCOVER THE  
DSM PEPHA®  
RANGE

FOCUS ON  
PEPHA®-TIGHT

DEEP BEAUTY  
PRODUCTS  
LINE-UP







# Algae make waves in skin care

Water is of our most sought-after resource for nutrient-rich ingredients: algae already known as superfood, are now super trendy in skin care, and consumers are catching on to the benefits of 'Blue Beauty' in their daily routines.

## The promise of blue biotechnology

Lab-grown alternatives meet demand for natural and sustainable solutions. Cultivation in photobioreactors maximizes the respect of the environmental biodiversity while ensuring optimal growing conditions and results in exceptionally pure algae, rich in active substances and of high quality due to minimum contamination risk.

## The power of algae

**PEPHA® Range** is DSM's biotech algae offer for healthy looking skin. Ingredients delivering crucial skin benefits with strong efficacy substantiation, **suitable for clean beauty formulations, 100% naturally derived, vegan-friendly, COSMOS approved.**



A STORY  
OF NATURAL RESILIENCE



# DSM PEPHA® CB Range

3 products & skin benefits

**SKIN TIGHTENING & FIRMING**



[Click to ID-card](#)

**SKIN ENERGIZING**



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**SKIN PROTECTION**



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# ID-Card

## PEPHA®-TIGHT CB

### SKIN BENEFIT

Immediate & long-lasting tightening and firming.

### ORIGIN

100% naturally-derived origin (ISO 16128). Derived from **Nannochloropsis oculata** microalgae and high performing polysaccharides.

### BIOTECH

Produced from microalgae grown in closed photobioreactor and extracted by hot water. Polysaccharides obtained from natural fermentation of starch syrup.

### RECOMMENDED DOSAGE

1-5%

### INCI

Nannochloropsis oculata extract, Pullulan - China listed.



NON-NUTRITIONAL PRODUCTS

CHINA LISTED

HALAL

100% NATURAL ORIGIN

VEGAN

ECOCERT

COSMOS APPROVED

Raw material verified by ECOCERT GREENLIFE, conform to the COSMOS Standard

100% COSMOS ANALYSIS

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# ID-Card

## PEPHA®-CTIVE CB

### SKIN BENEFIT

Energizes skin for revived, glowing complexion.

### ORIGIN

100% naturally-derived origin (ISO 16128). Derived from **Dunaliella salina** microalgae.

### BIOTECH

Sustainably farmed in photo-bioreactors, guaranteeing maximum quality (no risk of contamination, reproducibility of process, fully traceable). Cultivated in controlled conditions, optimally exposed to the right cellular stress: high salinity, high light intensity, nutrient deprivation, and extreme temperatures.

### RECOMMENDED DOSAGE

1-3%

### INCI

Dunaliella salina Extract.

 CHINA LISTED  
 HALAL  
 VEGAN  
 ECOCERT  
 COSMOS APPROVED  
 Raw material verified by ECOCERT GREENLIFE, conform to the COSMOS Standard  
 100% NATURAL ORIGIN





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# ID-Card

## PEPHA®-AGE CB

### SKIN BENEFIT

Protects from blue light and UV skin damages.

### ORIGIN

100% naturally-derived origin (ISO 16128).  
Derived from **Scenedesmus rubescens** microalga.

### BIOTECH

Sustainably farmed in photo-bioreactors, guaranteeing maximum quality (no risk of contamination, reproducibility of process, fully traceable).

### RECOMMENDED DOSAGE

1-3%

### INCI

Scenedesmus rubescens Extract.





# The production process

## A special growth by photobioreactors, for maximum quality & sustainability

- Maximizes the optimal growth conditions by providing sufficient light and minimizes the contamination risk: **purity, high quality, and high content of active substances** are ensured
- Enables a standardized process
- Respects biodiversity
- High level of renewable sources of energy



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COSMOS APPROVED  
Raw material verified by ECOCERT GREENLIFE, conform to the COSMOS Standard



# PEPHA®-TIGHT CB

The power of algae for superior skin tightening

# THE ALGAE: Nannochloropsis Oculata

**THE ALGAE:  
Nannochloropsis  
Oculata**

Lives in both marine  
and freshwater lakes

Used for several decades  
to **PRODUCE NUTRACEUTICALS**  
and **FEED SUPPLEMENTS**

**A STRONG COCCOID CELL WALL**  
that protects its bioactives

Supplies the skin with  
**ESSENTIAL AMINO ACIDS,**  
**PRECIOUS VITAMINS**  
(especially vitamins C and B12),  
and **POWERFUL ANTIOXIDANTS**

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# A unique combination for Efficacy and Sustainability

A transparent concentrated mixture with 3 powerful functional ingredients



**100%** naturally-derived, no fossil origin

**0%** Hazardous chemical substances

### Microalgae:

Produced in photobioreactor



### Pullulan:

fermentation of tapioca starch



### Pentylene Glycol:

Produced from valorized and naturally-derived material



Photobioreactors as a more sustainable solution compared to open ponds cultivation:



- ✓ Safer and better quality
- 🌿 More respectful of terrestrial biodiversity
- 60% Use of 60% of renewable energy

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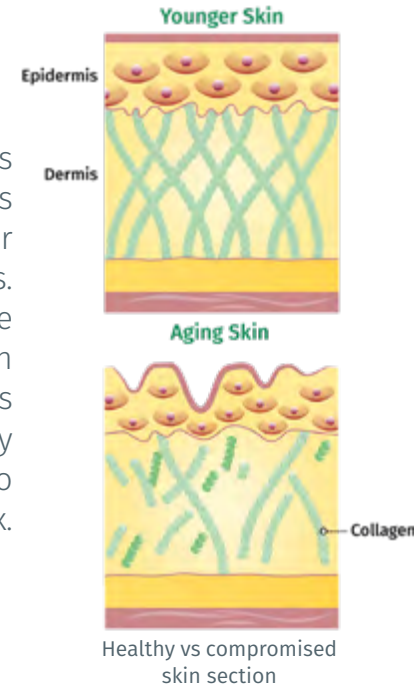
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# Over time skin works less efficiently

Profound changes occur in the structure of the dermis and epidermis, through processes of intrinsic and extrinsic aging, leading to the appearance of wrinkles and the loss of tone

With age, the Collagen density in the Dermis decreases and its network becomes increasingly fragmented, presenting shorter and less organized fibers.

An increase in Matrix Metalloproteinase (MMP) expression accelerates the Collagen degradation. In parallel, the synthesis of new extracellular matrix components by dermal fibroblasts slows down, failing to adequately replace the degraded matrix.



## The DSM solution: PEPHA®-TIGHT CB

### In vitro

- Stimulates Fibroblasts' proliferation by +350% and Collagen-I by +70%.
- Protects the skin against oxidative stress and urban dust.

### In vivo

- **Within minutes from 1st application:**
  - Smoothens skin texture for an immediate\* flawless effect.
- **Up to 12hrs long-lasting effect:**
  - Skin is firmer, more lifted and more elastic.
- **Long-term result, after 2 months treatment:**
  - Reduces the wrinkles' surface by -26% and length by -21%
  - Improves skin elasticity by 15% and tonicity by 24%.

\* Based on DSM clinical study where improvements in skin smoothness and texture homogeneity were detected already within 15min from 1st product application



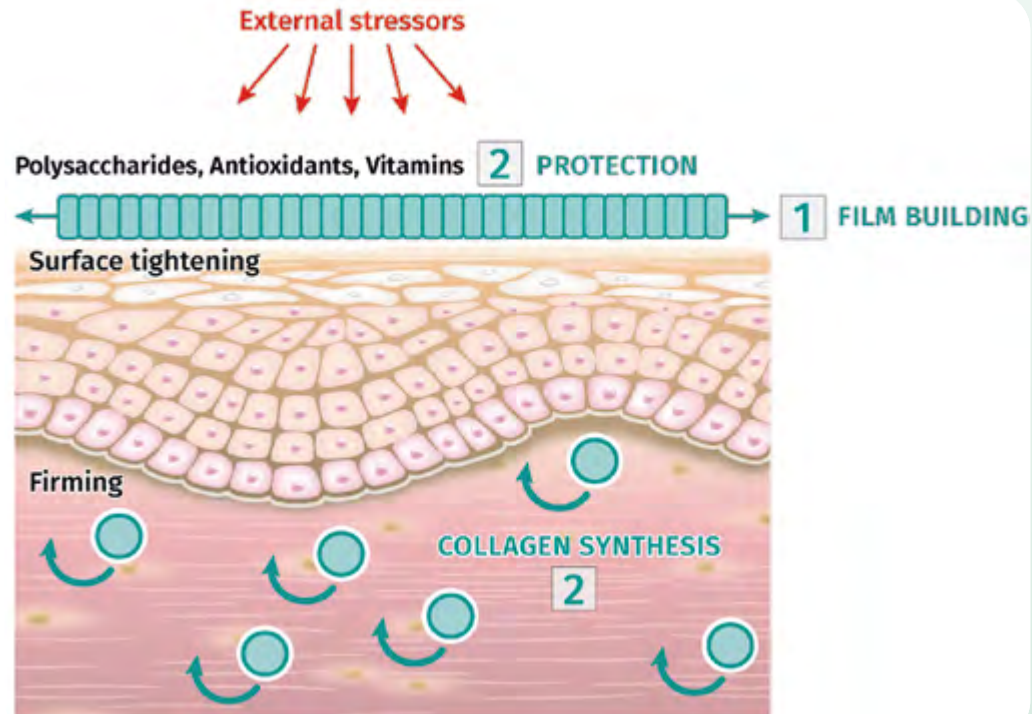
# How does it work?

## 1 Short-term effect:

PEPHA®-TIGHT CB forms a thin film on the skin, exerting an instant and long-lasting perceptible skin tightening effect.

## 2 Long-term skin firming:

PEPHA®-TIGHT CB acts as a protective shield against oxidative stress, helps to stimulate the formation of Collagen I, which is an essential part of the skin's connective tissue, and provides a long-term firming benefit when applied regularly.



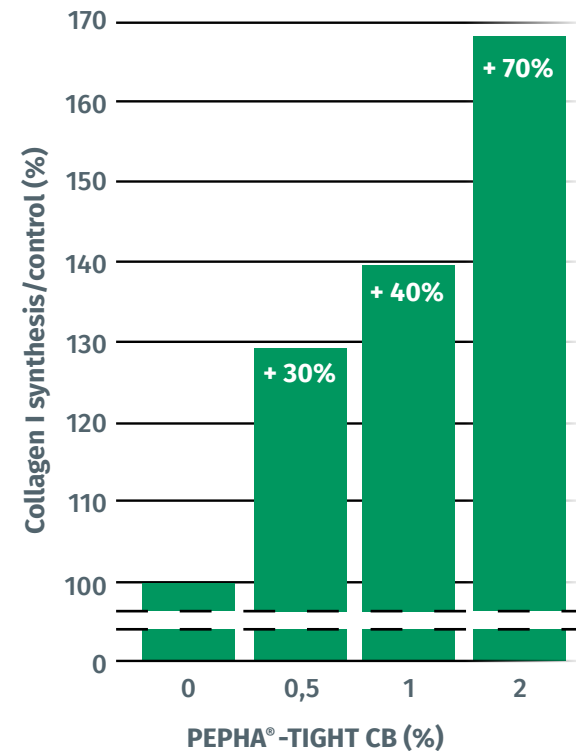
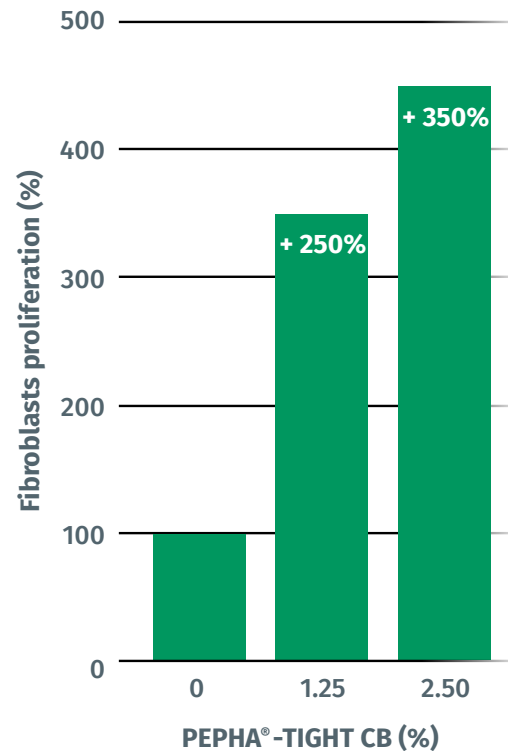
# Highly increases fibroblasts proliferation and Collagen I synthesis

## Stimulation of fibroblasts proliferation by 350% and Collagen I by 70%

Aged skin is characterized by a decline of cell number and proliferative cells. As a consequence, less ECM is produced, leading to a lack of structural components, such as collagen fibres. The skin gets thinner, less resilient and less firm.

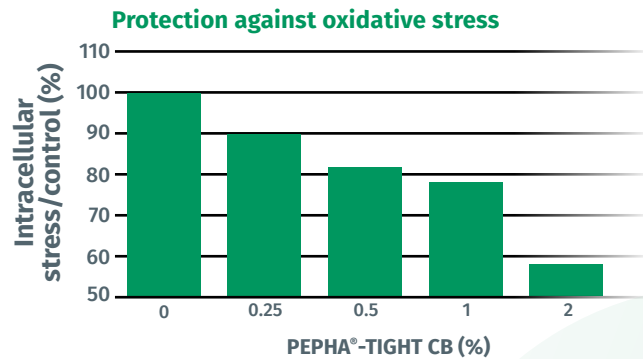
### Results:

Increase in cell proliferation of human fibroblasts, and consequently support for collagen production increase. Stimulation of Collagen I synthesis in human fibroblasts, improving the structure of the connective tissue.





# Protects the skin against stressors

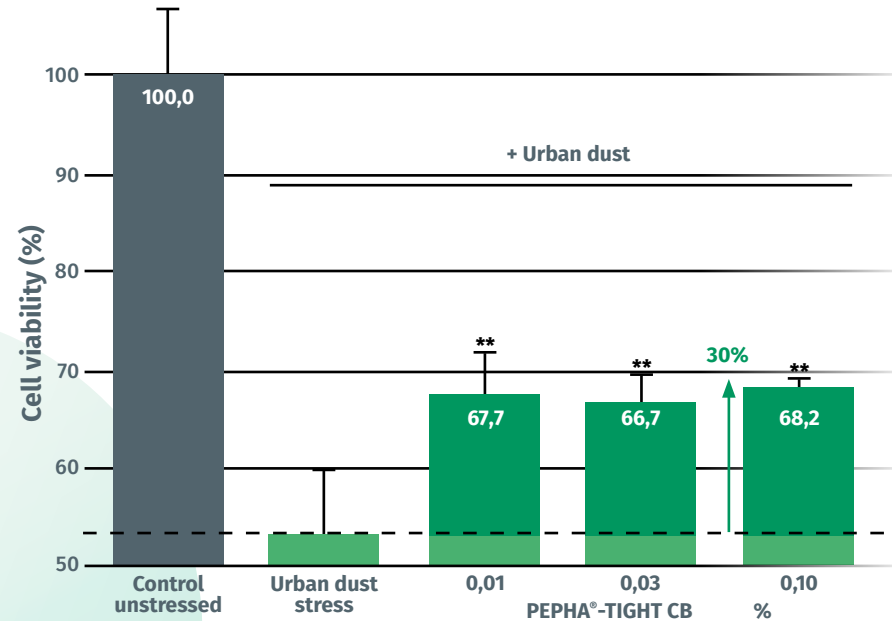


Reactive Oxygen Species (ROS) are known to accelerate the aging process. In addition, aged cells are less able to protect themselves against oxidative stress. This leads to an accelerated collagen breakdown and cross-linking of proteins. The skin gets thinner and less resilient. In vitro protection was measured by the ROS assay: Human fibroblasts were exposed to hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) to induce an intracellular oxidative stress. The release of ROS was quantified by fluorescence staining.

**Results:**

Dose dependent protection of human fibroblasts from oxidative stress, and consequently protection of the collagen fibre network from damaging processes.

**Protection of cell viability against urban dust**



Used in the DSM assay and research Standard Reference Material® (SRM) 1649b “urban dust” is an authentic surrogate for urban air pollution of the National Institute of Standards and Technology (Gaithersburg, MD, USA).

**Results:**

With PEPHA®-TIGHT CB, cell viability improves up to +30% vs stressed cells.

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# Short-term in vivo Study

## Study design, Spring 2022 (Lyon, France)

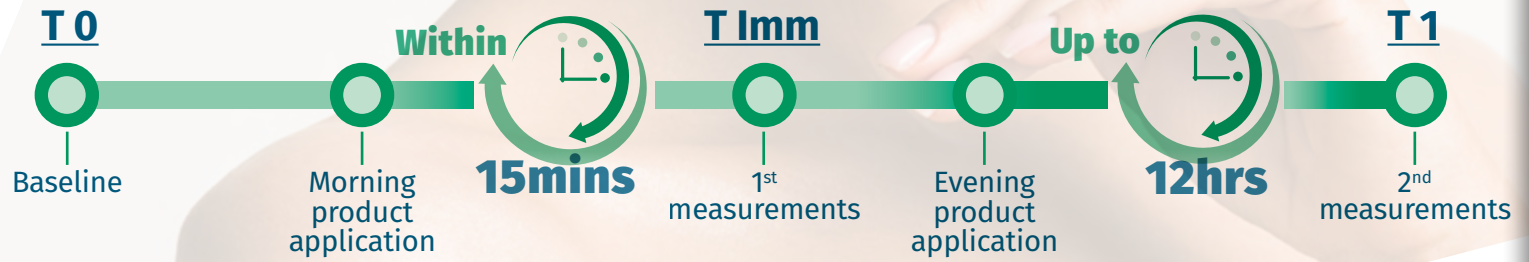
Randomized double blind,  
mono-center study.  
Caucasian female volunteers.

### Two groups:

Placebo & 3% PEPHA®-TIGHT CB  
27 volunteers by group, 40-65 y.o.  
(mean 55 y.o.)

### Twice daily product application

IN VIVO  
EFFICACY



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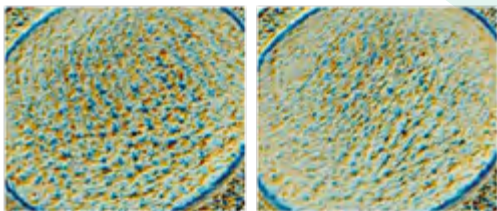
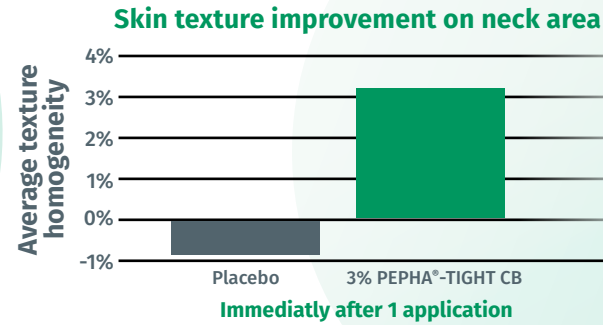
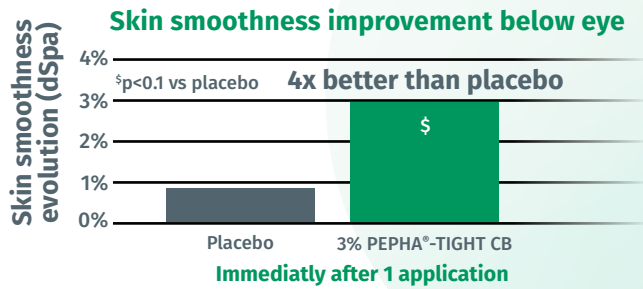


# Flawless skin within minutes

Within  15mins

**[ IN VIVO EFFICACY ]**

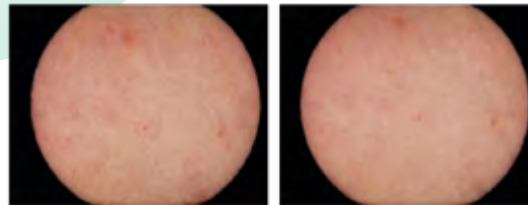
## SkinCam measurement



Volunteer 19

BASELINE

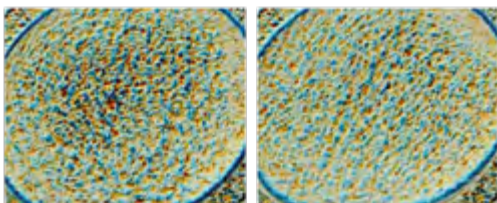
Immediatly after 1 application



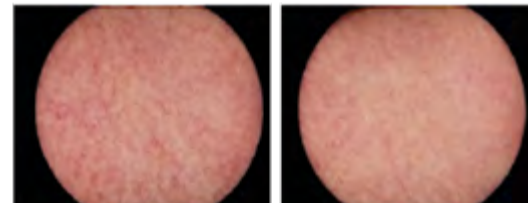
Volunteer 09

BASELINE

Immediatly after 1 application



Volunteer 36



Volunteer 58

*SkinCam takes an image of the skin surface and shows how the irregularities of the skin texture evolve. After PEPHA®-TIGHT CB application, skin surface appear smoother and texture more homogeneous.*

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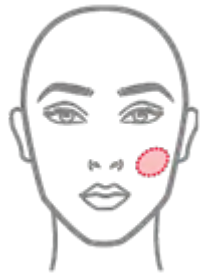
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# Long-lasting lifting effect

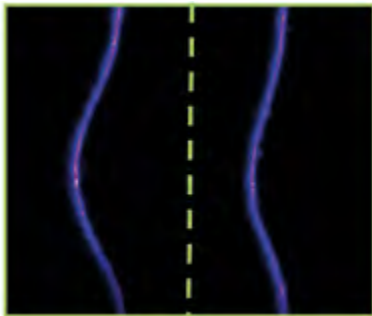
## SkinFlex measurement

PEPHA®-TIGHT CB is 13X better than placebo



Measurement area (Cheek)

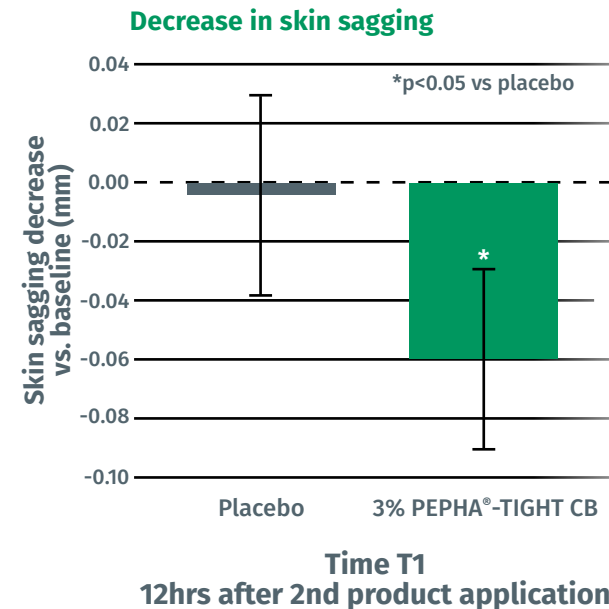
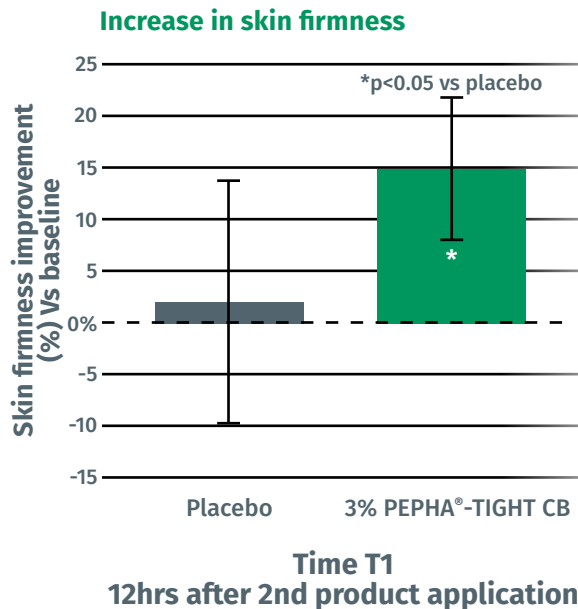
### Skin deformation upon strain



Baseline T0

T1

Volunteer 39



An airstream is blown perpendicularly to the cheek: it pushes the skin inwards forming a kind of "hole" in the cheek. The firmer & more lifted is the skin, the more it's able to resist the airstream, as shown for Volunteer 39 in the pic.

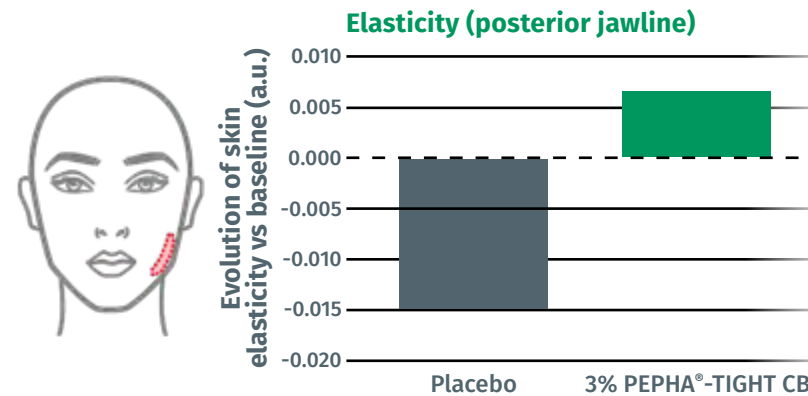
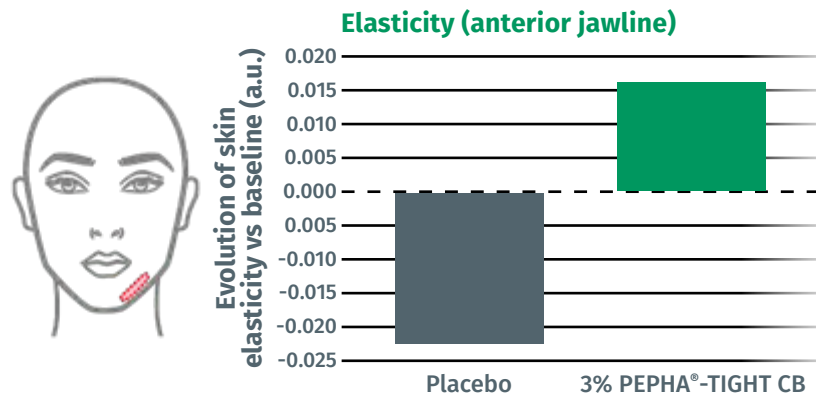
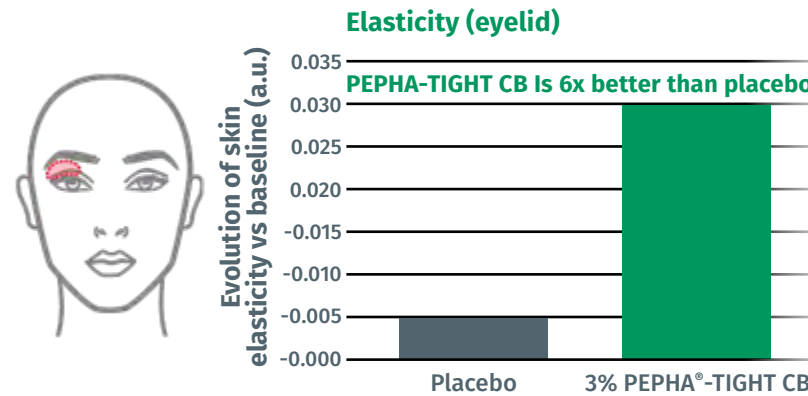
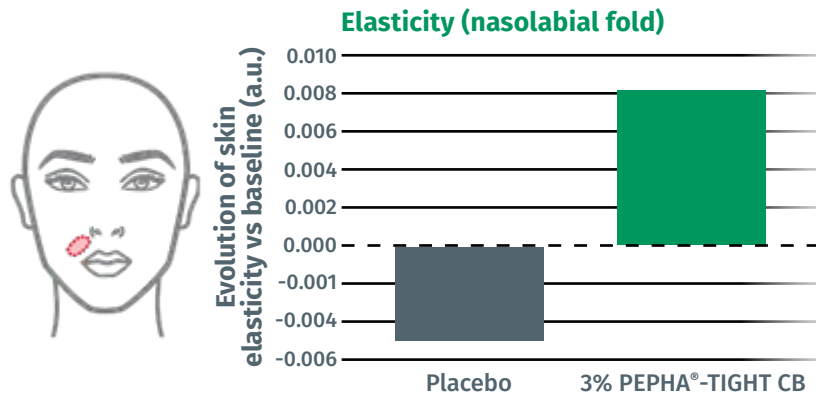


# Skin gains elasticity in critical facial areas

## Cutometer measurement



Time T1  
12hrs after 2nd product application

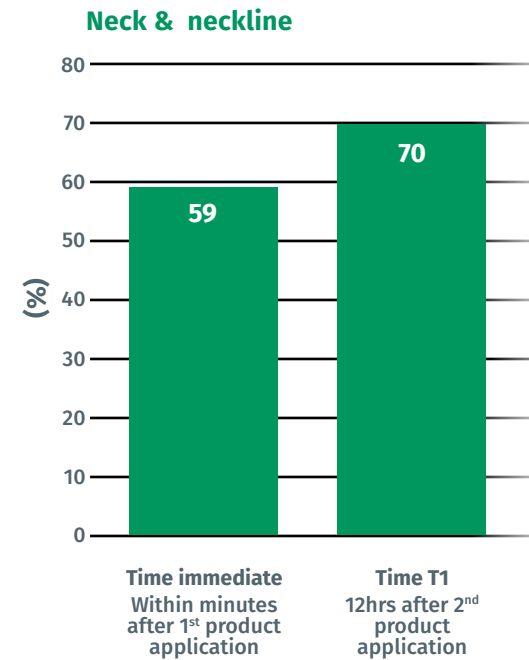
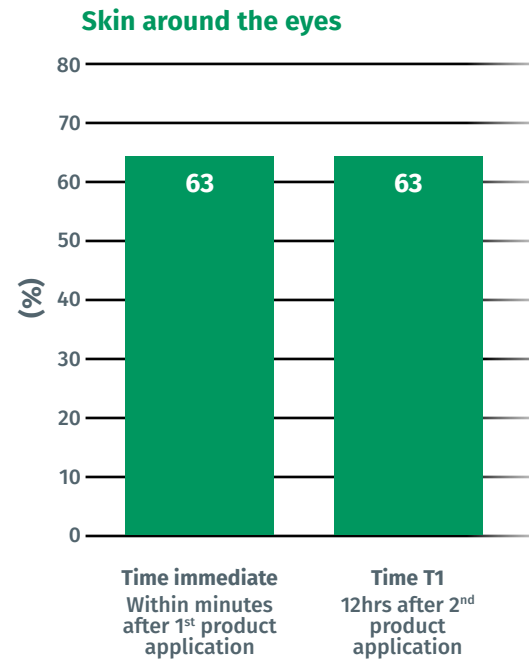
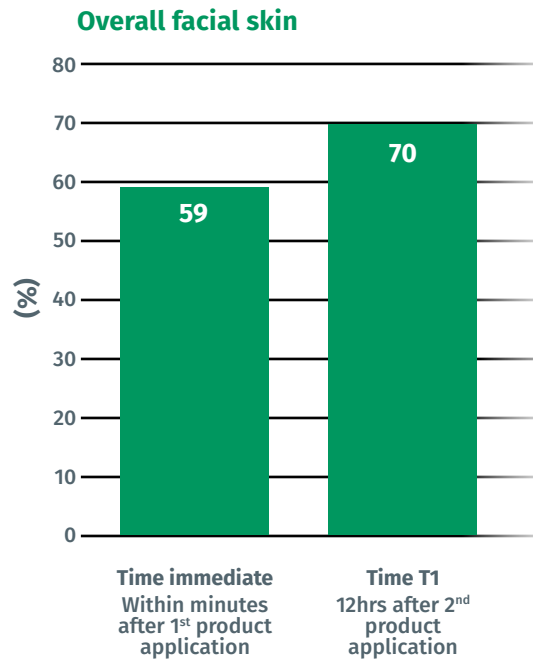


The Cutometer applies a vacuum to the skin, pulls on the skin and then lets it go. The time, velocity and return to the original position are measured, from this the elasticity is calculated. Elastic skin can bounce back to its original position fully and fast. with PEPHA®-TIGHT CB, we see an improvement of this skin behavior.

# Consumers perceive the improvement

Qualitative questionnaire, for immediate & long-lasting perception

% of affirmative answers to “My skin looks & feels firmer with PEPHA®-TIGHT CB”





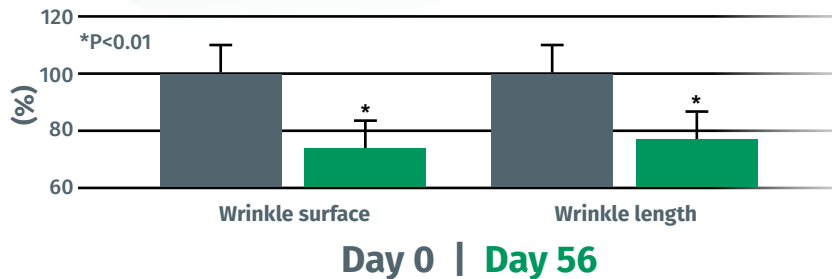
# Strong skin firming & significant wrinkles reduction with regular application

## Profilometry and Cutometry Measurements

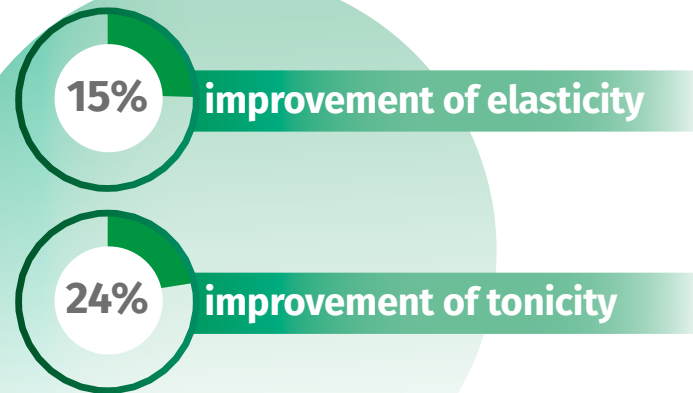
### Wrinkle reduction (*profilometry*):



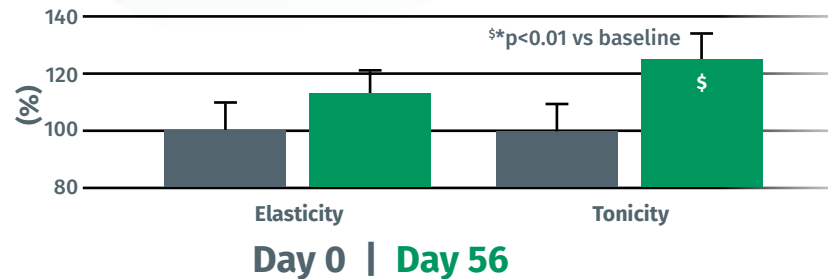
Visible wrinkle reduction after 2 months!



### Skin firming (*cutometry*):



Long-term skin firming results after 2 months!



Cream with 3% PEPHA®-TIGHT CB applied on the face twice daily over 2 months. 13 female volunteers 30-55y.o., mean 40yrs.

# Formulation Guidelines

## INCI name (active):

### **Nannochloropsis oculata Extract, Pullulan**

- Viscous, yellowish to amber solution
- Stable at pH ranges from 5 to 7
- Should be processed below 50°C
- Suggested concentration: 1 - 5 %

## Cosmetic application

- Facial skin tightening products
- Protective care for long-term firmer skin
- Firming and lifting Décolleté formulations
- Added value for anti-wrinkle products



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## Supported claims

Choose the fast lane to superior skin tightening

- | Flawless skin within minutes\*
- | With just 1 application, skin surface appears smoother and texture more homogeneous
- | Long-lasting lifting effect, up to 12hrs from last application
- | Skin gains elasticity in critical facial areas
- | After multiple applications, long-term well-aging effect with significant wrinkles reduction by over -20%

\* Based on DSM clinical study where improvements in skin smoothness and texture homogeneity were detected already within 15min from 1st product application

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# DEEP BEAUTY

DISCOVER THE HIDDEN SECRET OF NATURE FOR A HEALTHY-LOOKING SKIN!

POWERED BY BLUE BIOTECHNOLOGY INGREDIENTS, THE DEEP BEAUTY SKINCARE RANGE NOURISHES SKIN, PROTECTS AGAINST EXTERNAL AGGRESSORS AND HELPS MINIMIZE THE APPEARANCE OF FINE LINES AND WRINKLES WITH AN IMMEDIATE AND LONG-LASTING LIFTING EFFECT. FOR SKIN THAT LOOKS FIRMER, MORE VIBRANT HEALTHIER.

IS THIS NOT THE ULTIMATE DEEP BEAUTY?!



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# DEEP BEAUTY

## RADIANT DAY SHIELD SPF 30



**With PEPHA®-AGE CB, PARSOL® UV-filters, DL-alpha-Tocopheryl Acetate, VALVANCE® Touch 210, HYA-ACT™ M, TILAMAR® PDO with NØØVISTA™**

This luxurious soft texture is designed to boost skin's own defenses against photo-ageing for a radiant looking complexion. Packed with high-performing UV-filters and Blue Biotechnology, it protects against external aggressors (including UV & blue light) and promotes skin natural repair processes. For skin that feels stronger and healthier looking.

**74.2% natural origin content according to ISO 16128.**



SPF and Eco Class calculated by the DSM Sunscreen Optimizer™ 2.0



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# DEEP BEAUTY

2IN1 MILKY LOTION  
ON-THE-GO

**With PEPHA®-TIGHT CB, PEPHA®-CTIVE CB, ARGAN OIL, Mixed Tocopherols 95, SYN®-COLL and D-Panthenol 75 L.**

Your skin ally for an on-the-go extra boost of nourishment! Packed with Marine Biotech Complex, rich in amino acids, vitamins, minerals, antioxidants and essential fatty acids for immediate and long-lasting healthy-looking skin. This lightweight milky texture is designed for dual application: roll it over targeted zones for precision tightening spray it in a fine facial mist for instant hydration that smoothens and re-energizes your skin.

**99.39% natural origin content according to ISO 16128.**

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# DEEP BEAUTY

## REVITALIZING SERUM

**With PEPHA®-CTIVE CB, PEPHA®-TIGHT CB and TILAMAR® PDO with NØØVISTA™.**

A concentrated shot of the most powerful marine ingredients for strong anti-aging benefits. Skin looks immediately firmer and plumper, evener and re-energized.

**100% natural origin content according to ISO 16128.**

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## DEEP BEAUTY

INSTANT TIGHTENING  
ULTRA-PRECISION STICK

**With PEPHA®-TIGHT CB, ALPAFLOR® EDELWEISS CB,  
TILAMAR® PDO with NØØVISTA™ and VALVANCE® Look 100.**

A concentrated solid serum stick for targeted application. Enriched with powerful Active Algae, it helps minimize the appearance of fine lines and wrinkles with an immediate tightening effect and, when applied regularly, it acts as a protective shield against oxidative stress for healthier and firmer looking skin.

**100% natural origin content according to ISO 16128.**

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