

ExoPolySaccharides: The Marine Odyssey

EPIDERMIST

THE SKIN HEALTH INGREDIENT



EPIDERMIST

Origins and Properties

SOURCING

A marine ExoPolySaccharide produced by a micro-organism (*Vibrio sp*) in the Aber Benoit, Brittany, France.

WHAT MAKES IT UNIQUE

1 micro-organism = 1 unique EPS

Complex molecule: impossible to copy by synthesis.

Biodegradable molecule, natural source of nutrients for the cutaneous flora > POST-BIOTIC*

CHARACTERISTICS & COMPOSITION

Transformation process: blue biotechnology

Water soluble

Composition: galactose + N-acetyl glucosamine
+ N-acetylguluronic acid

**tested on S. epidermidis*

DID YOU KNOW?

97% of our planet's biodiversity is in the sea.

More than 90% is invisible to the naked eye.

Only 1% of marine biodiversity has been described.

Blue Biotechnologies Accelerator of Purity and Naturalness

Micro-organism culture in a bioreactor.

No chemical attachment between EPS and bacteria.

Extraction and purification of EPS performed using membrane technology.

0% Solvent - 100% Pure

EPIDERMIST Its Strengths

ANTIFOULING
PROPERTIES

+



+

RENOVATION OF THE
BARRIER FUNCTION

As a high molecular weight polymer it forms a second protective layer which prevents attachment of opportunistic and potentially pathogenic bacteria.

It strengthens the innate immunity of the skin so it can combat infectious agents more effectively.

It acts on epidermal differentiation processes to completely renovate the barrier function.

EPIDERMIST Targets and Benefits

FOCUS ON:

- Antifouling & Innate Immunity
- Inflammation & Reactiveness
- Cellular Renewal & Physical Barrier



STRENGTHENS SKIN PROTECTION
STRENGTHENS SKIN DEFENCES
REDUCES SKIN REACTIVENESS
HEALTH OF THE SKIN IS IMPROVED
NEW SKIN EFFECT



Sensitive skin
Fragile skin
Mature skin
Exposed skin

PROTECTION AND DEFENCE OF THE SKIN

Surface anti-fouling effect

Epidermist was tested on a cocktail of opportunistic bacteria which are frequently isolated on the skin and which are potentially pathogenic.

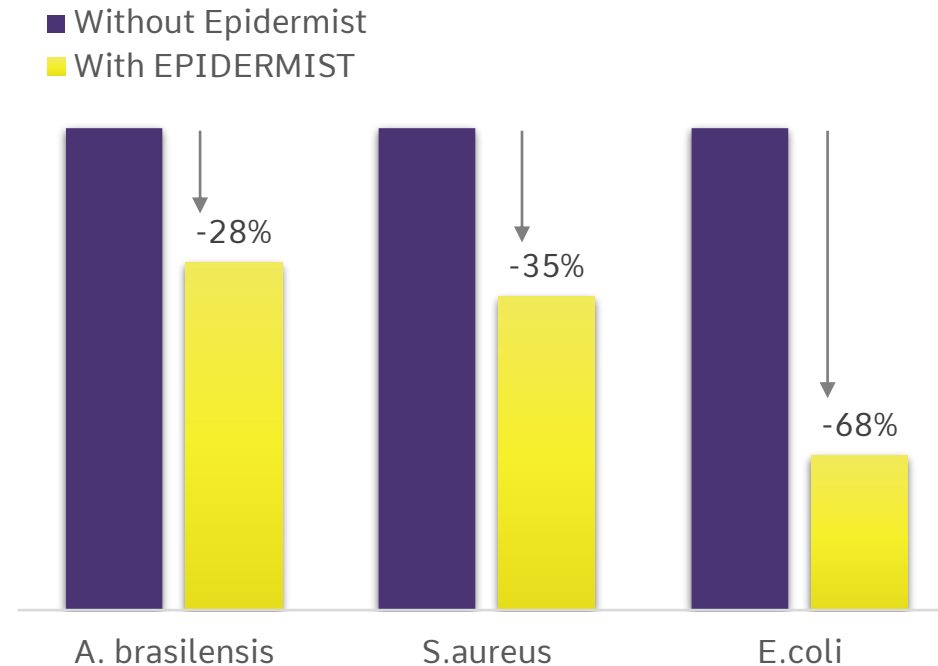
By limiting adhesion of potentially pathogenic bacteria Epidermist reinforces protection of the skin.

Aspergillus brasiliensis: a potentially pathogenic transient contaminating micro-organism.

Staphylococcus aureus: found on the skin of 20 to 40% of the population. Opportunistic potential pathogen.

Escherichia coli: Gram negative bacterium of the intestines, can be present by contact, potentially pathogenic.

% ADHESION OF OPPORTUNISTIC BACTERIA ON CUTANEOUS CELLS



0.001%
IN-VITRO
TEST

PROTOCOL
Normal human keratinocytes
Incubation 1 hr.
with bacteria mix +
Epidermist.
Inhibition of bacterial adhesion quantified using fluorescence intensity.

PROTECTION AND DEFENCE OF THE SKIN

Strengthening of innate immunity

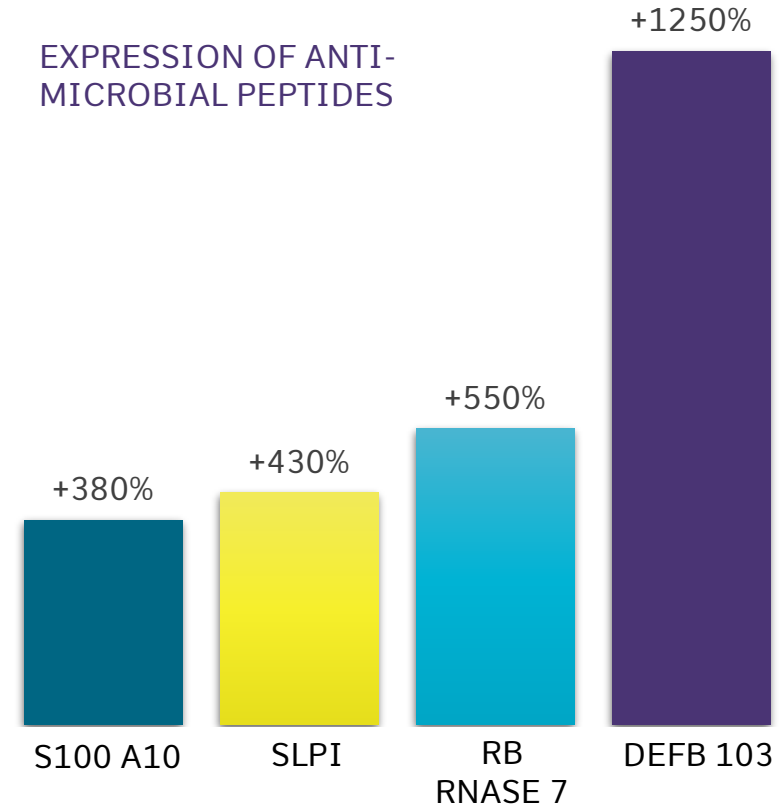
Innate immunity is the first line of defence against infectious and pathogenic agents which threaten the skin. It consists of anti-microbial proteins and peptides. It starts acting immediately and stays active for 4 days.

Epidermist stimulates the expression of 4 anti-microbial peptides in ratios that exceed 300%.

This action is in favour of a strengthening of the defences of the skin.

S100 Calcium Binding Protein A10 (S100A10): inhibits bacterial growth by interfering with their cellular cycle. / Secretory Leucocyte Peptidase Inhibitor (SLPI): inhibits proteases and more particularly elastases activated by bacteria to enhance their penetration into the tissue. / Ribonuclease Rnase 7 (RB RNASE 7): degrades RNA bacteria and viruses. / Defensin beta (DEFB103): destructures the membrane of exogenous bacteria, known for its effectiveness against Staphylococcus aureus.

EXPRESSION OF ANTI-MICROBIAL PEPTIDES



1%
EX-VIVO
TEST

PROTOCOL

Reconstituted human epidermes.
Topical application of Epidermist at 1%. PCR array analysis of gene expression.

PROTECTION AND DEFENCE OF THE SKIN

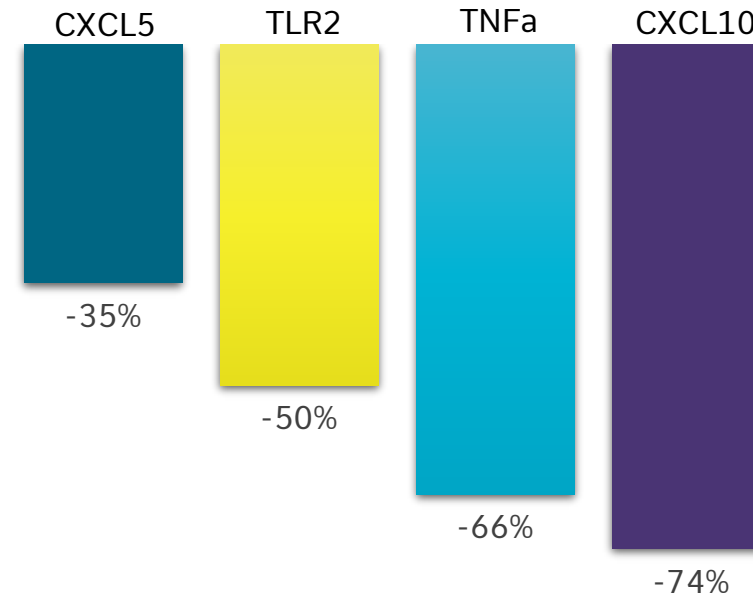
Reduction of Inflammatory Processes

By reinforcing both protection of the skin and its defences, Epidermist reduces the activation of inflammatory processes and release of pro-inflammatory mediators.

This action is in favour of a reduction in the overall reactivity of the skin and of a "good health" effect.

CXC Ligand 5 (CXCL5): chemokine involved in migration and activation of neutrophils on site. / Toll-like Receptor 2 (TLR2): recognises bacterial LipoPolySaccharides and activates TNFa. / TNFa: chemokine activator. / CXC Ligand 10 (CXCL10): chemokine involved in migration and activation of neutrophils on site.

EXPRESSION OF PRO-INFLAMMATORY MEDIATORS



1%
EX-VIVO
TEST

PROTOCOL


Reconstituted human epidermes. Topical application of Epidermist at 1%. PCR array analysis of gene expression.


PROTECTION AND DEFENCE OF THE SKIN

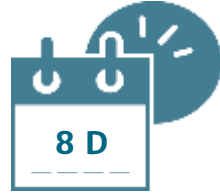
Benefits for the Health of the Skin

1%
IN-VIVO
TEST

 **17** volunteers
10 Women + 7 Men
(mean age 30 years)

 Reactive skin

 1% EPIDERMIST



2 APPLICATIONS / DAY
ENTIRE FACE

PARAMETERS ANALYSED

Analysis of skin reactivity by Stinging Test

PROTECTION AND DEFENCE OF THE SKIN

Benefits for the Health of the Skin

1%
IN-VIVO
TEST

After 8 days treatment

Epidermist significantly reduces skin's reactivity.

-37%** on average

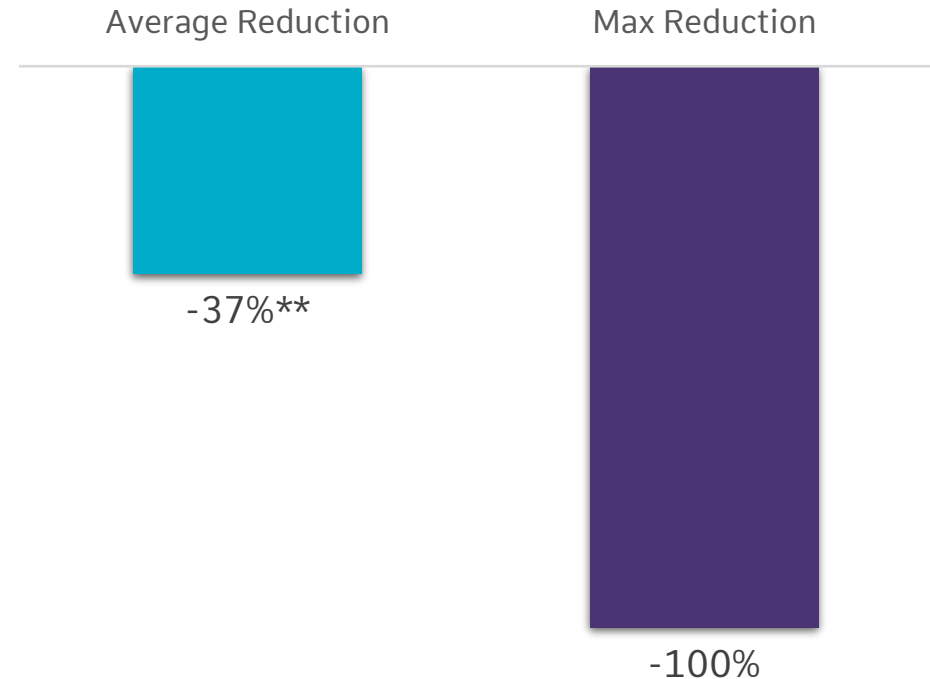
Up to -100%

76% of volunteers found their skin to be less reactive.

73% of volunteers found their skin to be in better health.

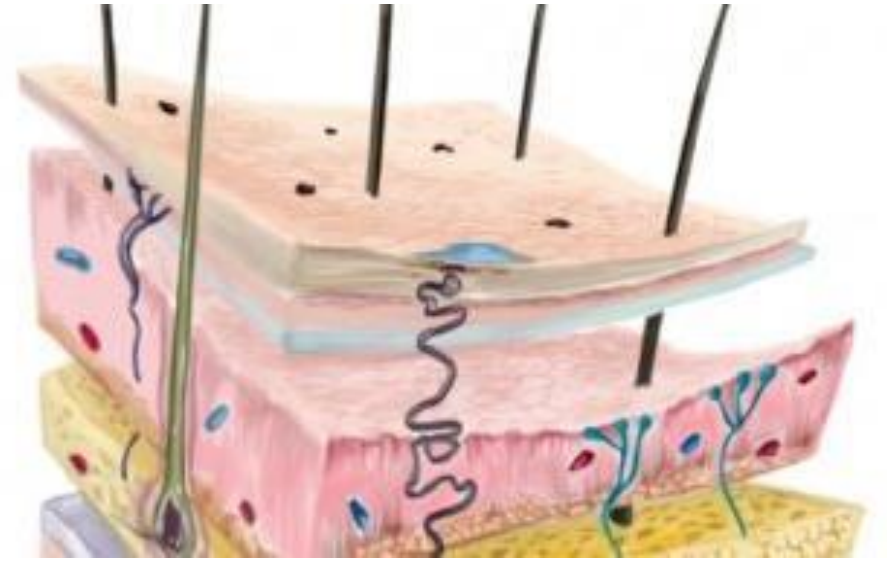
** $p < 0.01$ Student *t* test.

REACTIVENESS OF SKIN
VERSUS D0



PROTECTION AND DEFENCE OF THE SKIN

For an overall protective action, Epidermist complements its antifouling and innate immunity action with complete renewal of the physical barrier function.



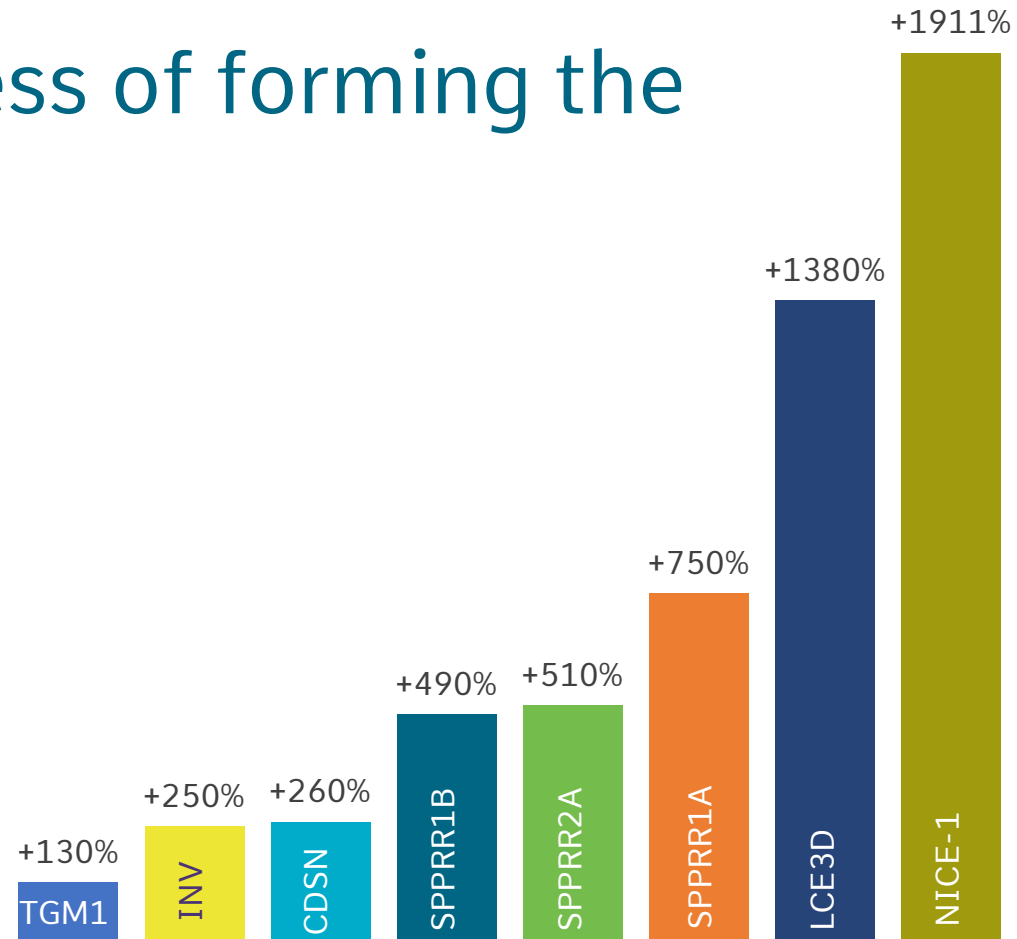
NEW SKIN EFFECT

Improvement in the process of forming the physical barrier.

The physical barrier is formed by the stratum corneum. It arises from the process of differentiation of keratinocytes into corneocytes.

Epidermist stimulates the expression of 8 proteins involved in differentiation of keratinocytes and in the formation and cohesion of the physical barrier.

This action is in favour of renewal of the corneal layer for a barrier function of higher quality.



1%
EX-VIVO
TEST

PROTOCOL
Reconstituted human epidermes.
Topical application of Epidermist at 1%. PCR array analysis of gene expression.

INVOLUCRINE (INV): involved in the formation of the corneal envelope.
TRANSGLUTAMINASE 1 (TGM1): assembles the proteins which make up the corneal envelope.
SMALL PROLINE RICH PROTEIN (SPRP): precursor proteins in the formation of the corneal envelope.
LATE CORNIFIED ENVELOPE (LCE): precursor proteins in the formation of the corneal envelope.
CORNEODESMOSINE (CDSN): central role in the cohesion of the corneal layer.
NICE 1: involved in terminal differentiation of keratinocytes.

NEW SKIN EFFECT

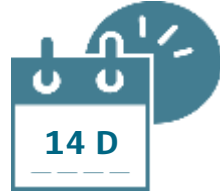
Renovation of the Physical Barrier

1%
IN-VIVO
TEST

 **17** volunteers
(aged 18 to 59 years).

 Normal Skin

 1% EPIDERMIST



**2 APPLICATIONS / DAY
FOREARM**

PARAMETERS ANALYSED

Evaluation of Cellular Renewal
(DHA determination method using spectro-colorimetry).

NEW SKIN EFFECT

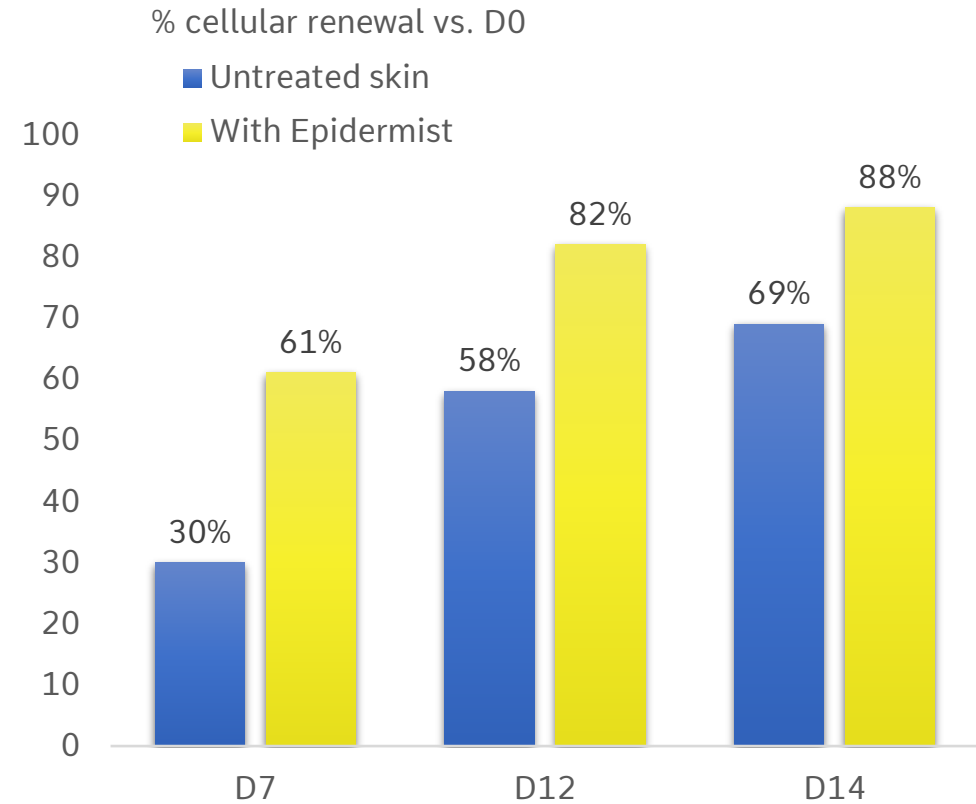
Activation of Renewal of the Physical Barrier

Epidermist improves cellular renewal:

2x more renewal after 7 days treatment.

This action is in favour of renovation of the physical barrier and a new skin effect.

1%
IN-VIVO
TEST




NEW SKIN EFFECT

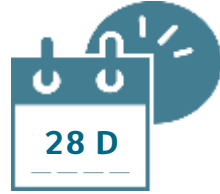
Beneficial for Skin Texture

1%
IN-VIVO
TEST

 **22** volunteers
(aged 36 to 46 years).

 Normal
to mixed skin

 1% EPIDERMIST



2 APPLICATIONS / DAY
ENTIRE FACE

PARAMETERS ANALYSED

Texture and roughness of the skin
VISIA Method

NEW SKIN EFFECT

Beneficial for Skin Texture

1%
IN-VIVO
TEST

After 28 days treatment, by renovating the barrier function:

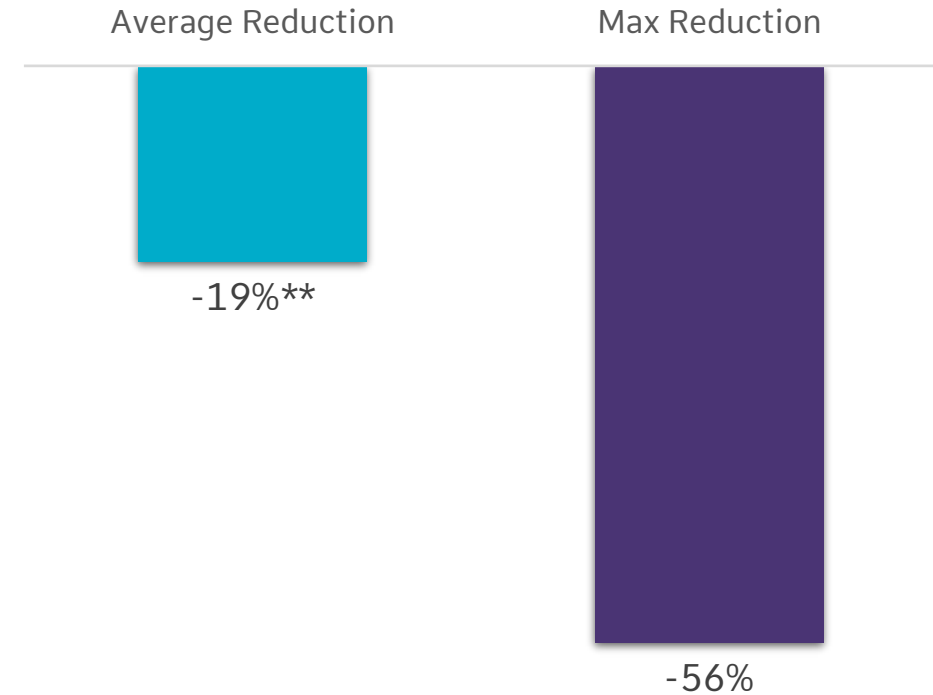
Epidermist significantly smoothens skin roughness.

-19%** on average

Up to -56%

82% of volunteers found their skin to be softer.

ROUGHNESS OF THE SKIN
VERSUS D0



** $p < 0.01$ Student *t* test.

NEW SKIN EFFECT

View of the Overall Effect of Epidermist

1%
IN-VIVO
TEST

The skin is visibly

- Less inflamed
- Smoother



NEW SKIN EFFECT

View of the Overall Effect of Epidermist

IN-VIVO
TEST
1%

The skin is visibly smoother



EPIDERMIST THE SKIN HEALTH INGREDIENT

ORIGIN



Micro-organism
Marine origin
France (Brittany)

Culture in Bioreactor
Water-soluble

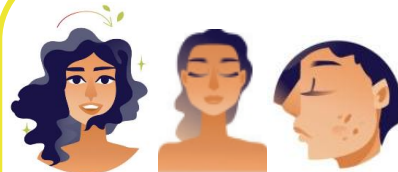
BENEFITS



Reinforces protection
and defence of the
skin.

Decreases reactivity
Skin is healthier
New skin effect

TARGETS



Sensitive skin
Fragile skin
Mature skin
Exposed skin

FORMULATION



Water soluble
pH : 5 - 9
T° : up to 90°C
%: 0.01 to 1%
Indicative
formulations
available on demand.

USE

INCI

PURE EPIDERMIST POWDER

Saccharide isomerate

EPIDERMIST PA

Water (and) Saccharide
isomerate (and) Phenethyl
alcohol

EPIDERMIST P1.5

Water (and) Saccharide
isomerate (and)
Phenoxyethanol

USE

0.01% (powder) - 1%

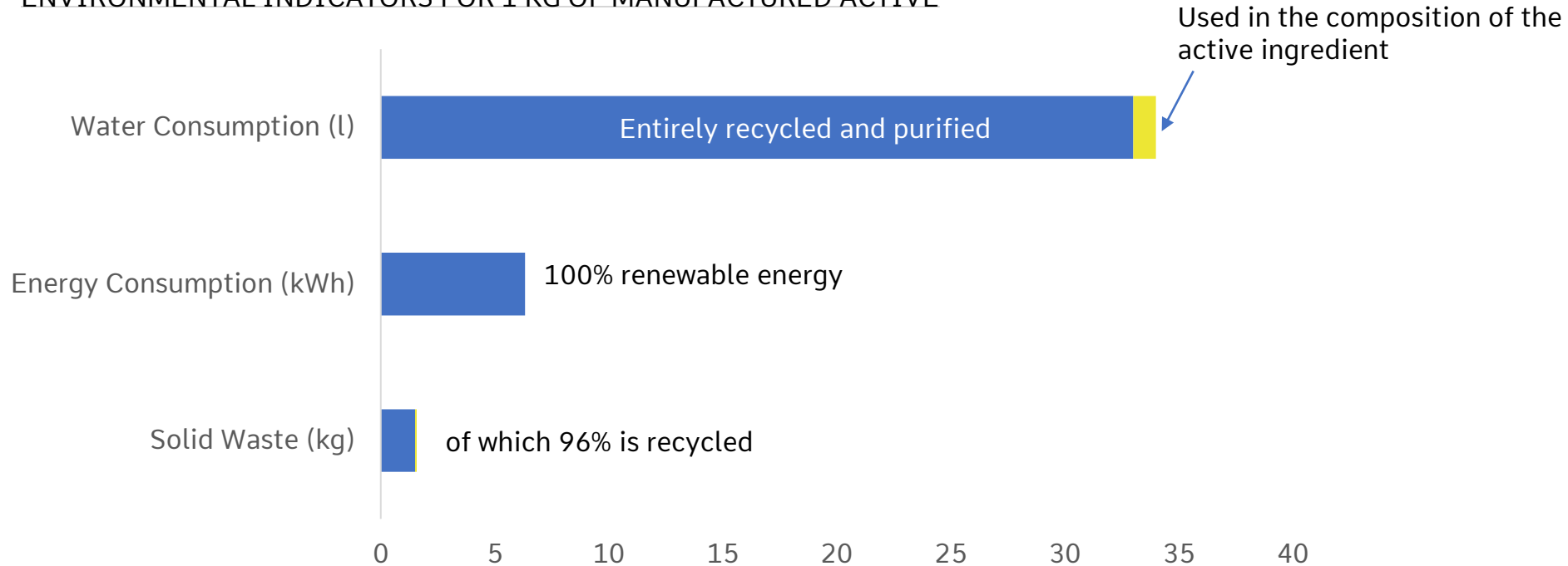
EPIDERMIST PA
OK COSMOS

EPIDERMIST

Good for the Planet.

ISO 16128

ENVIRONMENTAL INDICATORS FOR 1 KG OF MANUFACTURED ACTIVE



EPIDERMIST PA

NC: 100%
NOC: 100%
OC: 0%
OOC: 0%

EPIDERMIST P1.5

NC: 98.5%
NOC: 98.5%
OC: 0%
OOC: 0%

NC: Natural Content
NOC: Natural Origin Content
OC: Organic Content
OOC: Organic Origin Content



ExoPolySaccharides: The Marine Odyssey

