

The Rise of Barrier-First Skincare: From Skin Protection to Long-Term Skin Health



Understanding the Skin Barrier

For many years, skincare innovation focused on addressing visible concerns such as dryness, redness, uneven tone, and signs of aging. Today, the conversation is shifting toward a more fundamental question:

How can we support skin health before visible concerns appear?

At the center of this evolution lies the skin barrier.

Far more than a protective outer layer, the skin barrier is a highly organized biological system that regulates water balance, protects against environmental stressors, and supports overall skin homeostasis. When barrier function becomes compromised, signs such as dryness, irritation, sensitivity, and reduced tolerance to cosmetic treatments can quickly emerge.

As a result, maintaining barrier integrity is increasingly recognized as a foundation of healthy, resilient skin.

A Shift from Correction to Prevention

Historically, many skincare innovations were designed to target visible signs of skin imbalance after they appeared. Today, the industry is placing greater emphasis on preserving skin function before problems occur.

This change reflects a broader movement toward preventative skincare and long-term skin health. Instead of continuously

compensating for barrier disruption, modern formulations increasingly aim to support the skin's natural defense mechanisms and maintain its ability to respond to everyday challenges.

Rather than relying solely on highly active ingredients, brands are increasingly combining efficacy with skin compatibility. The objective is no longer simply performance, but performance that respects the skin's own biology.

For formulators, this means designing products that work with the skin rather than against it.

The Rise of Functional Barrier Care

Barrier care has evolved far beyond traditional moisturization.

Today, maintaining barrier integrity influences formulation strategies across multiple personal care categories, from facial and body care to cleansing and sun care.

This expansion reflects a growing understanding that healthy skin depends on multiple interconnected biological processes, including lipid organization, hydration, recovery mechanisms, and environmental protection. As a result, skin-identical lipids, advanced hydration technologies, and recovery-focused actives have become essential tools for maintaining skin function in everyday life.

Barrier support is therefore becoming less of a product claim and more of a formulation strategy.

The Microbiome Connection

As our understanding of the skin barrier evolves, another crucial component of skin health has gained increasing attention: the skin microbiome.

The skin is home to a complex and highly diverse microbial ecosystem that exists in constant interaction with the skin barrier. While the barrier helps create a stable environment, the microbiome contributes to maintaining balance at the skin surface.

Rather than acting independently, both systems work together to support overall skin function. This growing understanding is driving interest in microbiome-conscious formulations, amino acid technologies, fermentation-derived ingredients, and gentle formulation approaches that help maintain the skin's natural ecosystem.

For formulators, the opportunity is clear: supporting the microbiome is no longer a separate trend, but an integral part of modern barrier care.

Translating Barrier Science into Formulations – The Four Pillars of Modern Barrier Care

Modern barrier-focused formulations increasingly combine four complementary mechanisms: microbiome support, barrier reinforcement, skin recovery, and environmental protection.



1. Balance the Microbiome – Creating the Foundation for Healthy Skin

A healthy skin ecosystem starts with a healthy skin environment.

Balancing the Microbiome Through Amino Acid Science – with PRODEW® 600 from Ajinomoto*

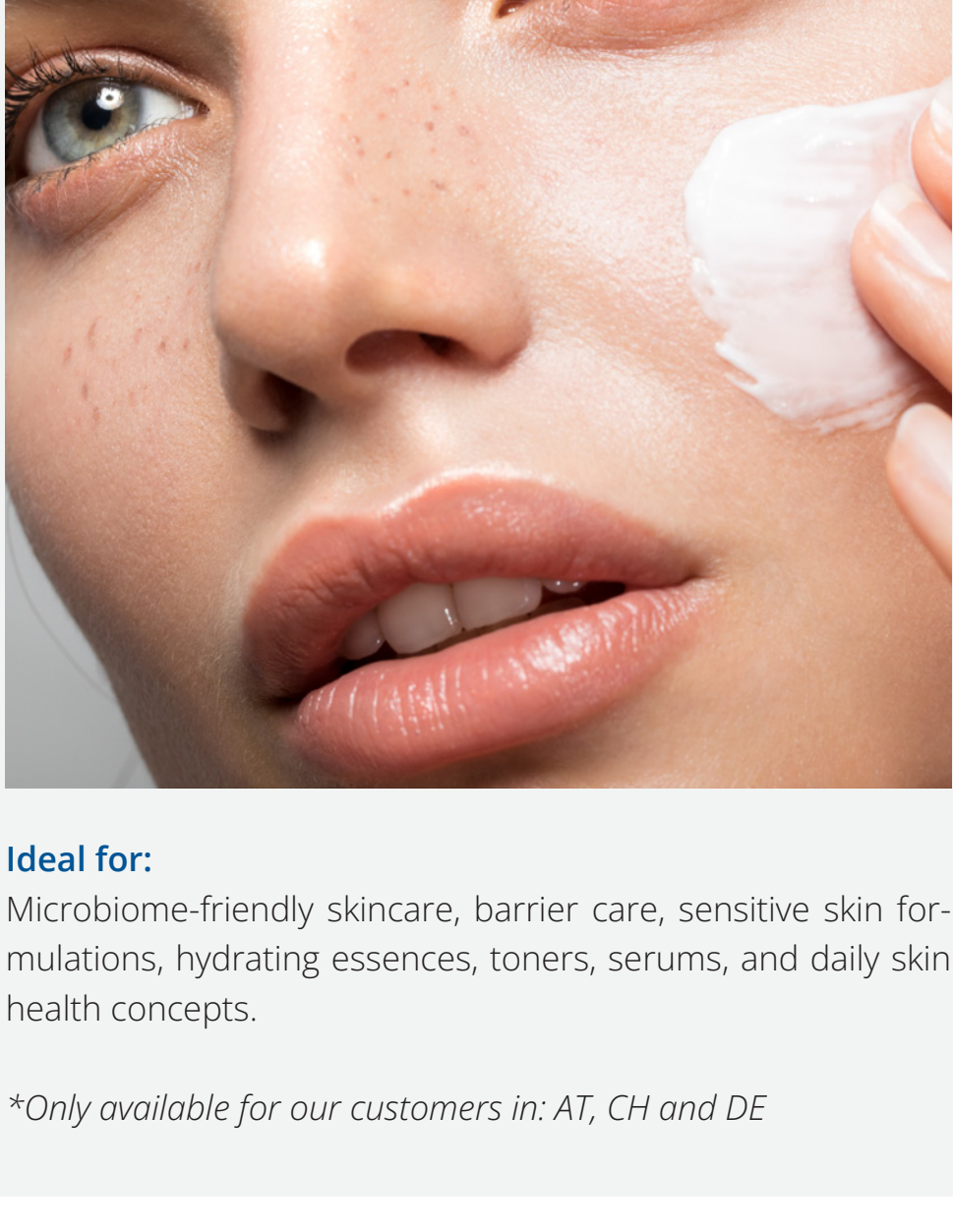
PRODEW® 600 is a Natural Moisturizing Factor (NMF)-inspired amino acid complex designed to mimic the amino acid composition of the skin's NMF. Beyond its well-known moisturizing properties, recent studies have shown that it can support a balanced skin microbiome by promoting beneficial skin bacteria, making it an ideal ingredient for barrier- and microbiome-focused formulations.

INCI: Sodium PCA, PCA, Arginine, Aspartic Acid, Glycine, Alanine, Serine, Valine, Proline, Threonine, Isoleucine, Histidine, Phenylalanine, Water

Recommended Use Level: 1.0 – 3.0 %

Key Benefits:

- Promotes the growth of beneficial skin bacteria (Staphylococcus epidermidis) to support microbiome balance.
- Increases skin hydration and improves barrier function by reducing transepidermal water loss (TEWL).
- Combines NMF-like moisturization with microbiome-supporting benefits for healthier-looking skin.



Ideal for:

Microbiome-friendly skincare, barrier care, sensitive skin formulations, hydrating essences, toners, serums, and daily skin health concepts.

**Only available for our customers in: AT, CH and DE*

2. Rebuild the Barrier – Reinforcing the Skin's Natural Defense System

The skin barrier relies on a well-organized lipid matrix to retain moisture and defend against external stressors.

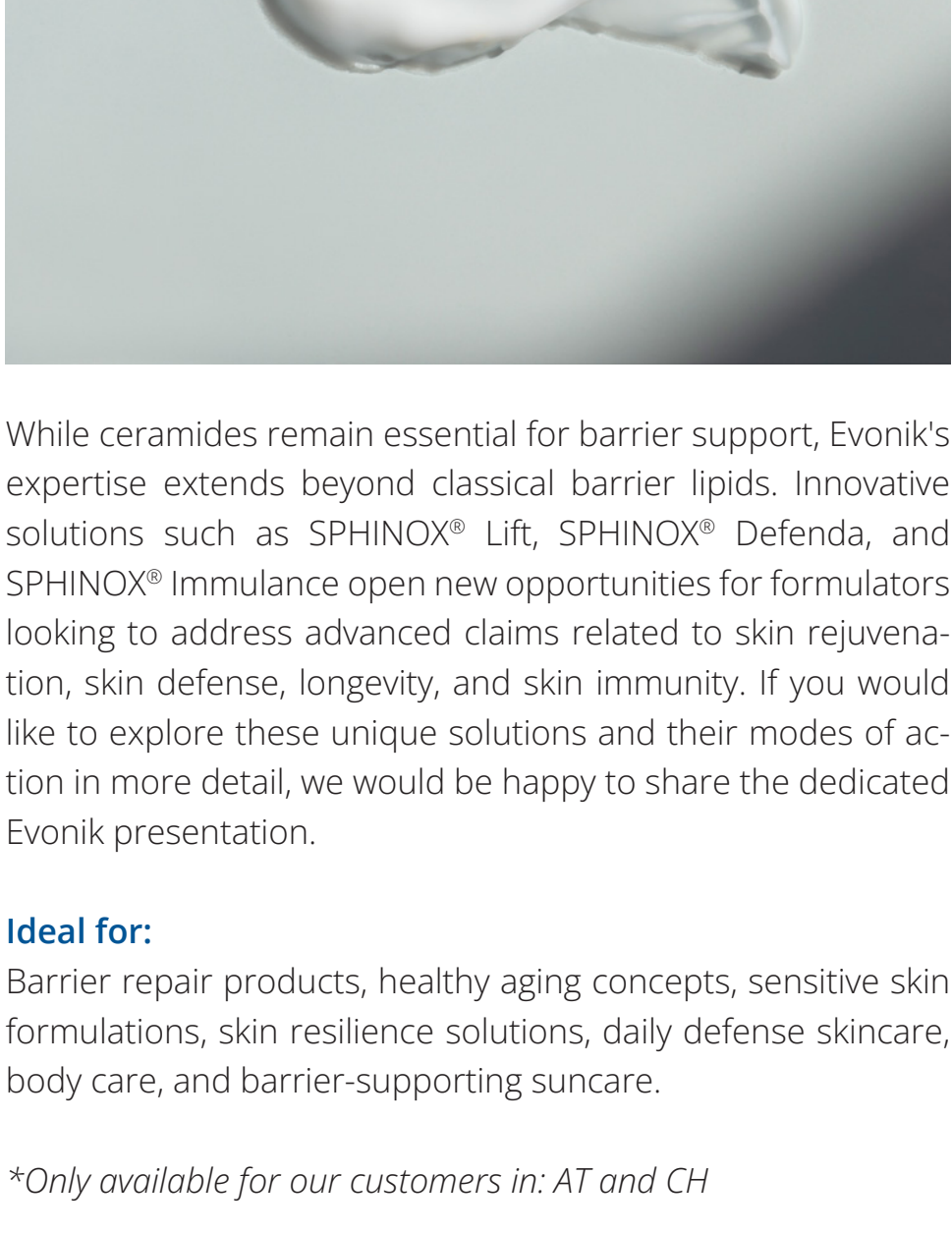
Reinforcing Skin Resilience with Evonik's Ceramides & Sphingolipids*

Ceramides are among the most important lipids within the stratum corneum and play a fundamental role in maintaining skin barrier integrity, moisture retention, and protection against environmental challenges. As ceramide levels naturally decline with aging, seasonal fluctuations, and external stressors, replenishing these essential lipids has become a cornerstone of modern barrier-focused skincare. Beyond traditional barrier support, advances in ceramide and sphingolipid science reveal their broader contributions to skin defense, longevity, and overall skin resilience.

With more than 30 years of expertise in ceramide technology, Evonik offers a comprehensive portfolio of skin-identical ceramides and bioactive sphingolipids for a wide range of barrier care applications. The portfolio includes different ceramide technologies tailored to various formulation requirements, allowing formulators to select the most suitable solution for applications ranging from barrier repair and skin hydration to healthy aging and skin comfort.

Key Benefits

- Supports barrier integrity and helps replenish essential epidermal lipids to enhance moisture retention and skin comfort.
- Contributes to skin defense and protection against environmental and physiological stressors.
- Supports skin smoothness, resilience, and long-term skin health.



While ceramides remain essential for barrier support, Evonik's expertise extends beyond classical barrier lipids. Innovative solutions such as SPHINOX® Lift, SPHINOX® Defenda, and SPHINOX® Immulance open new opportunities for formulators looking to address advanced claims related to skin rejuvenation, skin defense, longevity, and skin immunity. If you would like to explore these unique solutions and their modes of action in more detail, we would be happy to share the dedicated Evonik presentation.

Ideal for:

Barrier repair products, healthy aging concepts, sensitive skin formulations, skin resilience solutions, daily defense skincare, body care, and barrier-supporting sun care.

**Only available for our customers in: AT and CH*

Smart Barrier Support Beyond Moisturisation – with Hydra Synol® DOI from Hallstar*

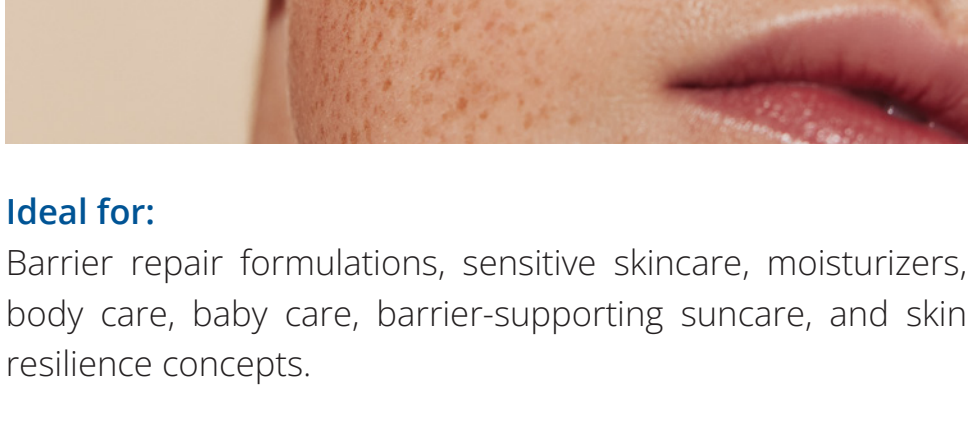
Hydra Synol® DOI is a multifunctional active ingredient that combines advanced hydration with biological barrier strengthening. Unlike conventional moisturizers, which primarily reduce water loss at the skin surface, Hydra Synol® DOI supports key mechanisms involved in skin barrier formation and maintenance. By stimulating Aquaporin-3 (AQP3), Ceramide Synthase 3, and structural proteins involved in cell-to-cell cohesion, it helps reinforce the skin barrier from within while improving overall skin comfort and resilience.

INCI: Isosorbide Dicaprylate

Recommended Use Level: 2.0 – 4.0 %

Key Benefits

- Stimulates AQP3 and CD44 to enhance the skin's natural hydration network and moisture distribution.
- Strengthens barrier integrity by upregulating Ceramide Synthase 3, tight junctions, and desmosomes.
- Improves barrier performance, reduces TEWL, and helps soothe skin stressed by environmental or physiological challenges.



Ideal for:

Barrier repair formulations, sensitive skincare, moisturizers, body care, baby care, barrier-supporting sun care, and skin resilience concepts.

**Only available for our customers in: AT, CH, FR and the UK*

Biomimetic Lipid Technology for Enhanced Barrier Performance – with MEADOWESTOLIDE® from Elementis*

MEADOWESTOLIDE® is a naturally derived lipid obtained from sustainable meadowfoam seed oil. Designed to support skin hydration and barrier performance, its unique molecular structure mimics key characteristics of the skin's own lipid architecture. Unlike many liquid lipid ingredients, MEADOWESTOLIDE® is supplied as a solid, cold-processable ingredient, offering formulators excellent flexibility while helping to reinforce moisture retention and skin protection.

INCI: Meadowfoam Estolide

Recommended Use Level: 0.1 – 10.0 %

Key Benefits

- Supports skin hydration and moisture retention through its biomimetic lipid structure.
- Helps protect the skin against environmental stressors while improving overall skin comfort.
- Provides formulation versatility through its liquid, cold-processable nature and elegant skin feel.



Ideal for:

Barrier care formulations, moisturizers, body care, sensitive skin concepts, sun care, and protective daily skincare products.

**Only available for our customers in: AT, CH and DE*

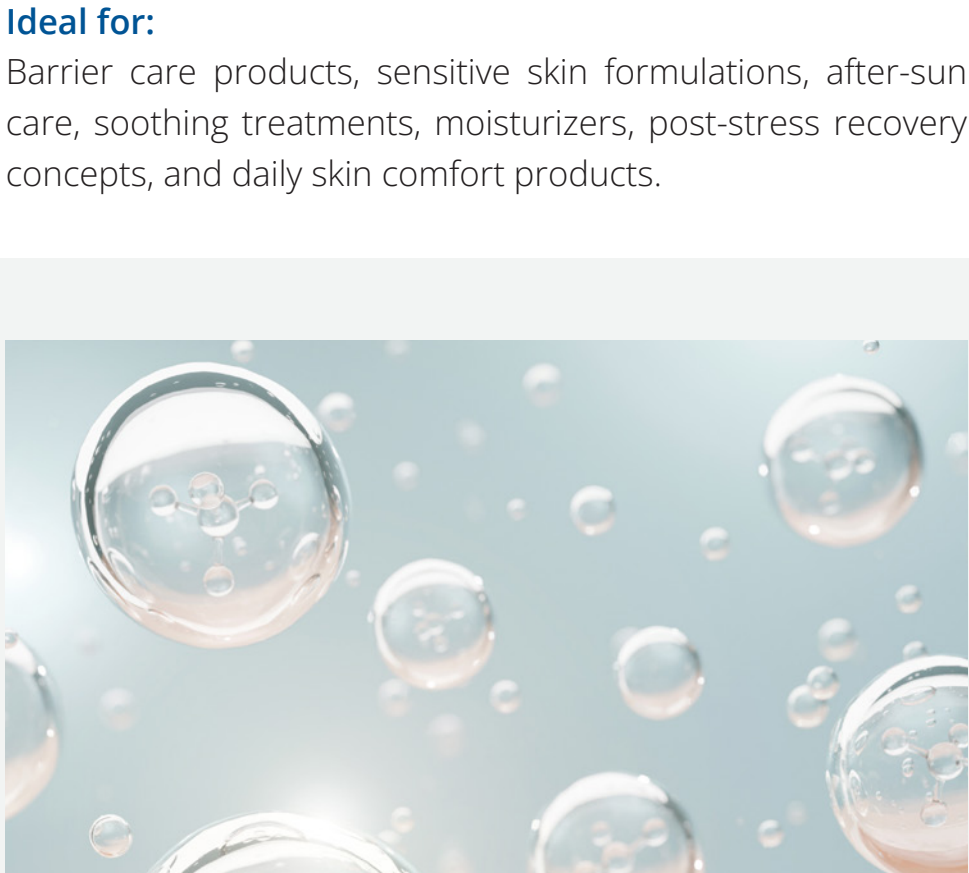
Rebuild the Barrier: Soothing, Hydrating, and Supporting Skin Recovery – with Aloe Vera from Terry Laboratories

Aloe vera is far more than a traditional moisturizing ingredient. Rich in naturally occurring polysaccharides, amino acids, vitamins, minerals, and phytoesters, it provides a multifunctional approach to skincare by supporting hydration, soothing skin discomfort, and promoting epidermal renewal. Rather than relying on a single active molecule, aloe vera's efficacy is based on the synergistic interaction of more than 200 bioactive compounds, making it an excellent ingredient for modern barrier-supporting and sensitive-skin formulations.

INCI: Aloe Barbadensis Leaf Juice

Key Benefits

- Provides long-lasting hydration through naturally occurring polysaccharides, amino acids, and moisturizing sugars.
- Helps soothe irritated and stressed skin by supporting the skin's natural anti-inflammatory processes.
- Supports epidermal regeneration and skin renewal by stimulating keratinocyte activity and skin vitality.



Ideal for:

Barrier care products, sensitive skin formulations, after-sun care, soothing treatments, moisturizers, post-stress recovery concepts, and daily skin comfort products.

3. Boost Skin Recovery – Supporting Repair and Regeneration

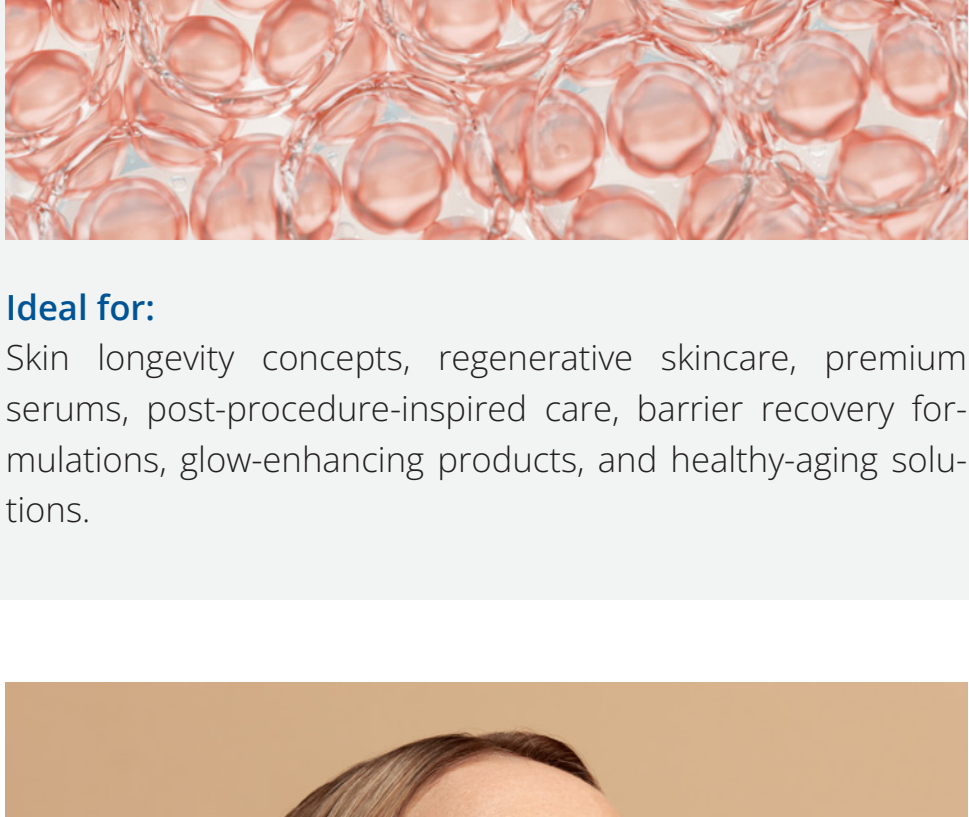
Recovery has become a key theme in modern skincare as consumers increasingly seek products that help their skin recover from daily environmental and lifestyle-related stress.

Boost Skin Recovery: Supporting Repair and Regeneration – with Plant-Derived PDRN & Exosomes from BIO FD&C

PDRN and plant-derived exosomes (extracellular vesicles) represent the next generation of regenerative cosmetic actives, inspired by advances in biotechnology and the growing consumer demand for longevity-focused skincare. While traditional PDRN is sourced from salmon DNA, new plant-derived alternatives provide highly purified DNA fragments obtained from botanicals such as centella, ginseng, rose, and tea tree, offering a sustainable and vegan-friendly approach to skin regeneration. Complementing this, plant-derived exosomes act as natural carriers of bioactive compounds, helping deliver targeted signals that support skin renewal and overall skin function.

Key Benefits

- Supports skin regeneration and recovery while promoting elasticity, firmness, and long-term skin vitality.
- Enhances skin appearance through improved radiance, refined texture, soothing benefits, and visible anti-aging effects.
- Contributes to skin barrier support and advanced skin resilience through biomimetic cell-communication and delivery mechanisms.



Ideal for:

Skin longevity concepts, regenerative skincare, premium serums, post-procedure-inspired care, barrier recovery formulations, glow-enhancing products, and healthy-aging solutions.

4. Protect the Ecosystem – Defending Skin Against Environmental Stressors

Daily exposure to ultraviolet (UV) radiation, pollution, and oxidative stress can challenge the skin's ability to maintain optimal function.

Advanced Antioxidant Protection for Modern Skin Stressors – with ASTACOS® OL50 from BDI BioLife Science*

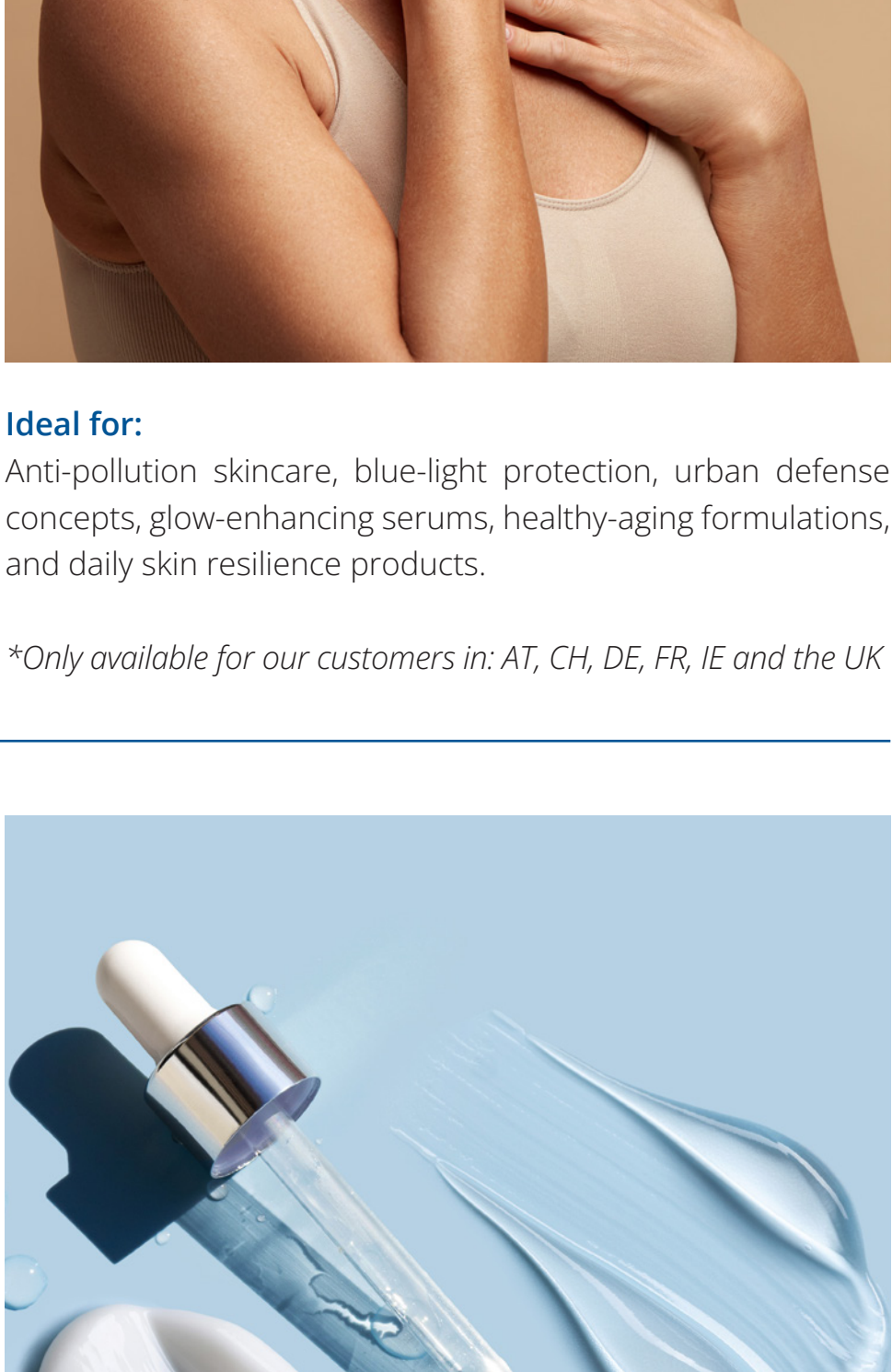
ASTACOS® OL50 is a natural astaxanthin-rich oleoresin derived from the microalgae *Haematococcus pluvialis*. Astaxanthin is often referred to as the "Red Diamond" among antioxidants due to its exceptional ability to neutralize reactive oxygen species. Thanks to its unique molecular structure, it integrates into cell membranes and provides comprehensive protection against oxidative stress caused by UV exposure, pollution, and digital aging factors such as blue light.

INCI: Simmondsia Chinensis Seed Oil, Haematococcus Pluvialis Extract, Tocopherol, Helianthus Annuus Seed Oil

Recommended Use Level: 0.01 – 0.10 % in O/W emulsions

Key Benefits

- Provides powerful antioxidant protection against oxidative stress and environmental aggressors.
- Supports cellular protection and helps defend skin against blue light-induced damage.
- Enhances skin radiance, glow, and complexion homogeneity while supporting healthy-aging concepts.



Ideal for:

Anti-pollution skincare, blue-light protection, urban defense concepts, glow-enhancing serums, healthy-aging formulations, and daily skin resilience products.

**Only available for our customers in: AT, CH, DE, FR, IE and the UK*

Long-Lasting Hydration and Protection Through Cross-Linked Hyaluronic Acid Technology with HYALU-CAGE SYSTEM® NE from I.R.A.

HYALU-CAGE SYSTEM® NE is a highly cross-linked hyaluronic acid network designed to deliver long-lasting hydration and enhanced skin protection. Compared with conventional linear hyaluronic acid, its unique structure is significantly more resistant to enzymatic degradation, enabling a prolonged moisturizing effect on the skin surface. The resulting moisture-retaining film helps support skin comfort, smoothness, and protection against daily environmental stressors.

INCI: Aqua, Pentylene Glycol, Sodium Hyaluronate Crosspolymer, Sodium Chloride, Hydroxyacetophenone

Recommended Use Level: 2.0 – 5.0 %

Key Benefits

- Provides long-lasting hydration through highly cross-linked hyaluronic acid technology that is resistant to enzymatic degradation.
- Forms a protective moisture-retaining film that helps reduce water loss and shield the skin from environmental aggressors.
- Improves skin smoothness and the appearance of skin lifting and visible signs of photoaging while enhancing overall skin comfort.



In a Nutshell: Healthy skin starts with healthy skin function.

Modern barrier-focused formulations combine microbiome support, barrier reinforcement, recovery, and protection to help maintain skin health and resilience over time.

Supporting the barrier is no longer a trend. It is becoming the foundation of modern skincare.