SALVONA
Unique&Easy Micro-Encapsulation Solutions

Natural HydroSal® Moisturizer (NHS Moi)

Skin barrier repair for moisturized, healthy, and more youthful skin.

CAUSES OF DRY SKIN

Dry skin can result from various factors, including environmental conditions, harsh skincare products, aging, and certain skin conditions. A key issue is the breakdown of the skin's natural barrier, which can lead to moisture loss and increased sensitivity.

Ceramides, which are essential lipids naturally found in the skin, play a crucial role in maintaining and restoring this barrier. When the skin lacks ceramides, it becomes more prone to dryness, irritation, and even eczema. By replenishing ceramides, skincare products can help reinforce the skin's barrier, lock in moisture, and protect against environmental damage, leading to smoother, more hydrated skin.

TECHNOLOGY

The Natural HydroSal® technology enables the sustained release of functional ceramides and precursors for the natural synthesis of ceramides. This delivers immediate and long-lasting moisturization. The system enables easy and fast formulation, avoiding the need for high heat for pre-suspending the ceramides, while improving skin adhesion, and ultimately greater bioavailability and efficacy.

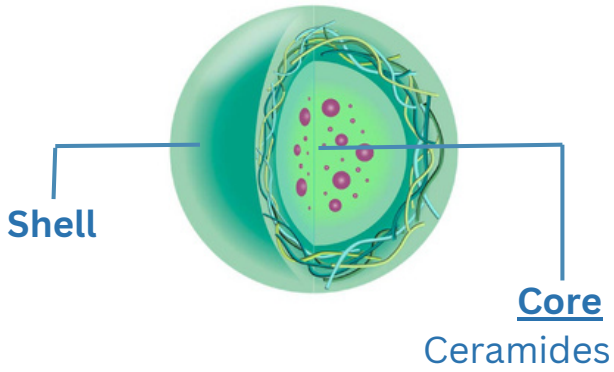

Figure 1: Sub-Micron structure of NHS Moi 8044-09

MECHANISM OF ACTION

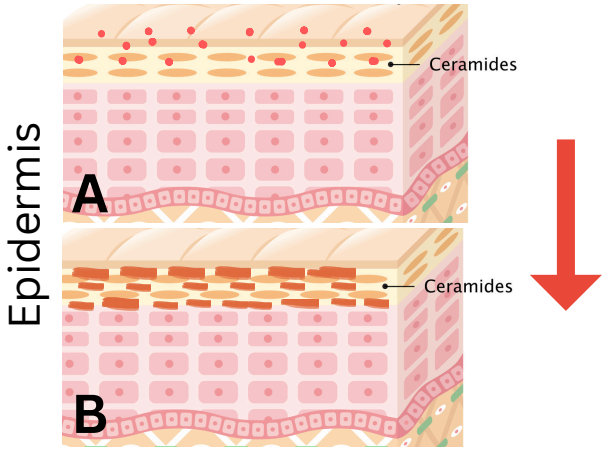

Figure 2: Cross section of the skin.
A - Skin with a depleted level of ceramides,
B- Skin with restored functional barrier properties due to increased presence of ceramides.

The Natural Hydrosal® Technology Infused with a proprietary blend of 3 essential ceramides along with precursors for natural ceramide synthesis (vegan cholesterol and Phytosphingosine), encapsulated in our patent pending technology designed to stabilize, retain and slowly release and replenish ceramides within the skin. Use of Natural HydroSal® Moisturizer delivers immediate and long-lasting deep moisturization.

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Technical Data

INCI LIST

Key INCI: Ceramide NP (Ceramide 3), Ceramide AP (Ceramide 611), Ceramide NG (Ceramide 2, Phytosterols, Phytosphingosine, Glycine Soja (Soybean) Oil, Hydroxypropyl Guar, Tragacanth Gum

Other INCI: Aqua, Polyglyceryl-4-Caprate, Propanediol, Bentonite, Cetyl Alcohol, Cetearyl Glucoside, Benzoic Acid*, Caprylol Glycine*, Undecylenoyl Glycine*

*= Components of Preservative

Table 1: Specifications of NHS Moi 8044-09

Property	Specification
Appearance	Opaque Emulsion
Color	White to Off-White
Odor	Characteristic
pH	TBD

Figure 3: Natural HydroSal® Moisturizer

QUALIFICATION

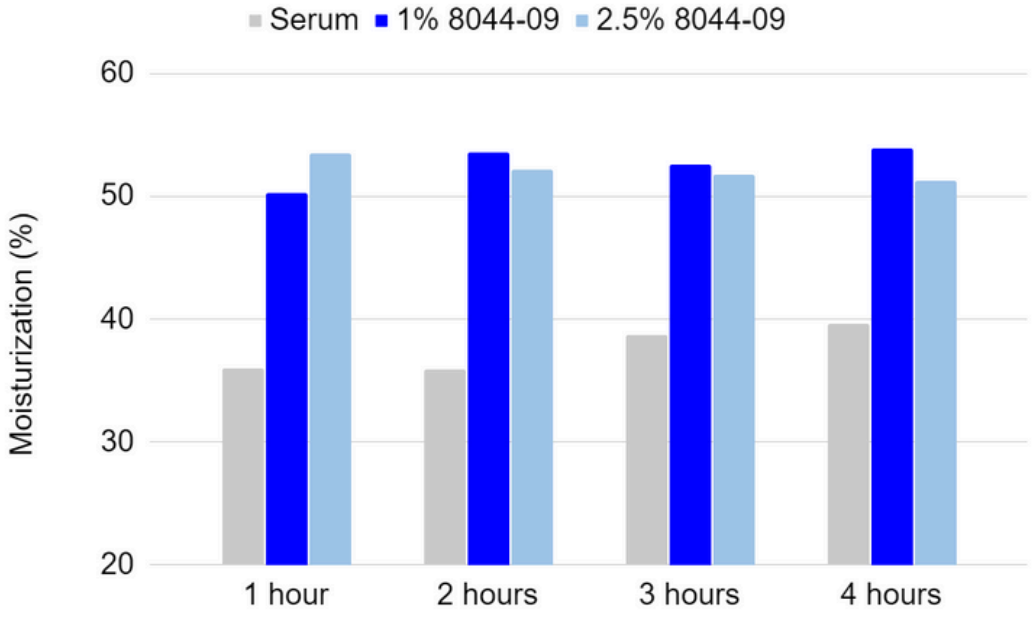

Figure 4: Corneometer study of Moisture level on the skin from Natural HydroSal® Moisturizer vs. Base Serum

A single skin application yielded an immediate increase in moisture level. The serum did not significantly increase the moisturization percentage. When used at even 1%, NHS Moi increased the moisturization level over 50% , showing the increase in moisturization offered by the technology. This offers a marketing benefit because the technology can be used at a low concentration.

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Applications

Table 2: Cream with NHS Moisturizer 8044-09

INCI	Wt (%)
Water/Aqua	67
Zea Mays (Corn) Starch	1.50
Propanediol	2.00
Xanthan Gum	0.50
Isostearyl Isostearate	9.00
Glyceryl Stearate	1.50
Cetearyl Alcohol (and) Cetearyl Glucoside	3.00
Cetearyl Alcohol	1.00
Helianthus annuus (Sunflower) Seed Oil	1.00
Cocos nucifera (Coconut) oil	1.00
Butyrospermum Parkii (Shea) Butter	0.50
Squalane	4.00
C13-15 Alkane	4.00
NHS Moi 8044-09	**2.00**
Preservative	2.00

Table 3: Lotion with NHS Moisturizer 8044-09

INCI	Wt (%)
Water/Aqua	84.00
Glycerin	3.00
Propanediol	3.07
Hydroxypropyl Guar	0.50
Cetearyl Alcohol (and) Cetearyl Glucoside	2.50
Isostearyl Isostearate	2.43
Cocos nucifera (Coconut) oil	1.40
Butyrospermum Parkii (Shea) Butter	0.10
Squalane	1.00
NHS Moi 8044-09	**1.00**
Preservative	1.00

CORE CLAIMS

- Easy to formulate, pre-suspended and high-load of ceramides and ceramide precursors
- Immediate repair of barrier properties
- An encapsulated form of a proprietary blend of natural ceramides and precursors to provide a long-lasting sustained benefit.

ADDITIONAL FORMULATIONS :

Facial Cleanser: Cleansers can sometimes strip the skin of its natural oils, leading to dryness. Adding NHS Moisturizer can help maintain the skin's hydration while cleansing

Anti-Aging Serum: Anti-aging products often focus on ingredients like retinol or alpha hydroxy acids that can be drying. Incorporating NHS Moisturizer can help counteract this dryness and support a more youthful, hydrated complexion.

Lip Balm: Lips are particularly prone to drying out, especially in harsh weather conditions. Adding NHS Moisturizer can help protect and hydrate the lips, keeping them soft and smooth.

Hand Cream: Frequent hand washing and exposure to the elements can lead to dry, cracked hands. A hand cream with NHS Moisturizer can provide essential hydration and barrier protection.

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Substantiation

CLAIM	SUBSTANTIATION	SOURCE
Sub-micron emulsions of ceramides are the most effective at penetrating skin through the stratum corneum	"Considering the literature review, we assert that these microemulsion formulations are the most permeable preparations for topical application of CERs among other novel carrier systems. This situation could be based on directly improving penetration through the stratum corneum due to the high surfactant content of formulations and indirectly increasing solubility (thereby thermodynamic activity) of CERs via microemulsions. Moreover, some researchers have suggested that droplet size of microemulsions and nanoemulsions including CERs is crucial for their penetration through the stratum corneum."	Kahraman, E., Kaykın, M., Şahin Bektay, H., & Güngör, S. (2019). Recent Advances on Topical Application of Ceramides to Restore Barrier Function of Skin. Cosmetics, 6(3), 52. doi:10.3390/cosmetics6030052
Topical application of ceramides is an effective therapeutic for treatment of psoriasis and atopic dermatitis	"Previous studies have shown that topical application of phytoCer or its analogues (phytosphingosine maleic and fumaric acid amides) increases NMF and skin hydration, decreases skin inflammation in keratinocytes, and ameliorates IL-23-induced psoriasiform dermatitis in mouse ears. A recent study among 106 psoriasis vulgaris patients implicated that topical application of linoleic acid ceramide moisturizer is effective for both treatment and prevention of psoriasis." "Ceramides were shown to prevent the downregulation of filaggrin and disorganization of keratin 10 and β4-integrin in an AD-like 3D human skin model. Topical application of linoleic acid-ceramide moisturizer also show promising effects in AD patients, by significantly improving skin capacitance, TEWL, Eczema Assessment Severity Index (EASI) and pruritus scores. Moreover, ceramide-containing moisturizers can minimize corticosteroid exposure, prevent corticosteroid side-effects and reduce AD flares..."	Li, Q., Fang, H., Dang, E., & Wang, G. (2019). The Role of Ceramides in Skin Homeostasis and Inflammatory Skin Diseases. Journal of Dermatological Science. doi:10.1016/j.jdermsci.2019.12.002
Topical application of ceramides alleviates dry skin	"Imokawa's group studied the effect of the topical application of sebaceous-rich lipids and stratum corneum lipids on lipid-depleted forearm skin that had been pretreated with acetone/ether or with surfactant-treated dry skin. In both cases, only applications of the stratum corneum lipids caused a significant recovery in either conductance value or scaling, the ceramide fraction being the one that induced the highest increase in conductance. Furthermore, some synthetic pseudo-ceramides (long chain acyl amides of OH-functional ethers) have been demonstrated to alleviate dry skin."	Coderch, L., López, O., de la Maza, A., & Parra, J. L. (2003). Ceramides and Skin Function. American Journal of Clinical Dermatology, 4(2), 107–129. doi:10.2165/00128071-200304020-00004

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Substantiation

CLAIM	SUBSTANTIATION	SOURCE
Ceramides improve skin hydration and reduce TEWL by improving skin barrier function	"One study demonstrated that CERs 1 and 3 acted synergistically in an emulsion to improve skin hydration and reduce TEWL in skin treated with sodium lauryl sulfate. CERs 1 and 3 have been formulated into several commercial lotions, creams, and moisturizers... Clinical studies in patients with atopic skin have demonstrated the effectiveness of these products at improving skin hydration and skin barrier function."	Meckfessel, M. H., & Brandt, S. (2014). The structure, function, and importance of ceramides in skin and their use as therapeutic agents in skin-care products. Journal of the American Academy of Dermatology, 71(1), 177–184. doi:10.1016/j.jaad.2014.01.891
Topical application of lipids, ceramides, cholesterol, and free fatty acids facilitate restoration of skin barrier from damage caused by skin diseases such as atopic dermatitis, psoriasis and contact dermatitis	"Atopic dermatitis, psoriasis, and irritant/allergy contact dermatitis are associated with water barrier dysfunction. Intercellular lipids, especially ceramides, play a crucial role in skin barrier function. Most skin disorders that have a diminished barrier function have been found to be characterized by a decrease in total ceramide content with some differences in ceramide pattern. Formulations containing lipids identical to those in skin and some ceramide supplements might improve disturbed skin. Damaged skin barrier function might be restored by topical application of intercellular lipids. Man et al. demonstrated that a topically applied mixture of stratum corneum lipids, ceramide, cholesterol and free fatty acid on murine and human skin was incorporated into the nucleated layer of epidermis and accelerated repair of water barrier function after damage." "Berardesca et al. evaluated the efficacy of skin lipid mixture in patients with contact dermatitis, allergy contact dermatitis or atopic dermatitis. Skin lipid treatment groups experiences statistically significant improvements in all parameters (dryness, scaling, fissuring, erythema, pruritus, and overall disease severity) at 4 and 8 weeks compared with baseline in patients with these skin diseases, These findings support the view that optimized lipid mixtures may be helpful in providing barrier properties in patients with skin diseases." "De Paepe et al. investigated the effect of topically applied ceramide-containing mixtures on the barrier repair of chemical-induced skin disease. Barrier recovery was significantly accelerated by topical application of the complete mixture (i.e. ceramides 3, 3B, and 6, together with cholesterol, phytosphingosine, and linoleic acid) compared with results obtained with application of ceramide 3 and 3B emulsion. These investigators demonstrated that ceramides combined with other skin lipids can improve repair of the skin barrier after damage."	Choi, M. J., & Maibach, H. I. (2005). Role of Ceramides in Barrier Function of Healthy and Diseased Skin. American Journal of Clinical Dermatology, 6(4), 215–223. doi:10.2165/00128071-200506040-00002