

20% Alpha/Poly Hydroxy Acid Cream Improves the Symptoms of Recalcitrant Hyperkeratosis

Irina Brouda, Brenda L. Edison, Barbara A. Green
NeoStrata Company, Inc., Princeton, NJ, USA

Introduction

Hyperkeratinization, a thickening of the stratum corneum, is a well-documented symptom of xerosis, keratosis pilaris, ichthyosis, and psoriasis. These disorders are marked by increased corneocyte cohesion, decreased rates of desquamation, low surface lipid content, and poor water retention in the stratum corneum. Individuals suffering from severe disorders of hyperkeratinization have unusually dry, rough, cracked, flaky, and itchy skin, which can be both uncomfortable and embarrassing.¹ Over-the-counter moisturizers are helpful for mild xerosis but have limited effectiveness in severe dry skin conditions.²

Alpha hydroxy acids (AHAs), poly hydroxy acids (PHAs), and aldobionic acids (BAs) have a profound effect on stratum corneum barrier function.³ Select AHAs reduce corneocyte cohesion and promote desquamation and have been shown to significantly improve severe hyperkeratotic conditions, including lamellar ichthyosis, epidermolytic hyperkeratosis, and X-linked ichthyosis.⁴ PHAs and BAs are hygroscopic substances that reduce transepidermal water loss and protect against external insults by strengthening the skin barrier.^{5,6,7} A well formulated product containing AHAs, PHAs, and BAs can normalize epidermal thickness, restore normal stratum corneum barrier function, and promote better water retention.

A high-strength, cosmetically elegant skincare cream containing a 20% combination of alpha/poly/bionic hydroxy acids has been developed to address the challenge of problem dry skin conditions. This poster reviews the effects of this high strength AHA/PHA/BA cream on the clinical presentation of common dry skin conditions including winter xerosis and hyperkeratosis of the heels as well as more severe hyperkeratotic conditions such as psoriasis vulgaris and lamellar ichthyosis.

Test Product

PDS Cream
(Problem Dry Skin Cream, NeoStrata® Company, Inc, Princeton, NJ, USA)

Key Benefit Ingredients

Formulation Component	Ingredients	Benefits for Problem Dry Skin
Alpha hydroxy acids	15% blend of glycolic acid, lactic acid, and mandelic acid	– Exfoliation – Normalization of epidermal and stratum corneum thickness
Poly hydroxy / bionic acids	5% blend of gluconolactone and maltobionic acid	– Light exfoliation – Moisturization – Skin barrier strengthening
Vitamin E	Tocopheryl acetate	– Antioxidant – Emollient
Emollient/occlusive vehicle	20% blend of oils and beeswax	– Reduction in skin roughness and dryness on contact – Long-lasting feeling of moisturization
Amphoteric Agent	Arginine	– Enhanced product mildness and gentle delivery of AHAs

Clinical Studies

Winter Xerosis

PDS Cream was tested on dry winter skin. Significant improvement in the appearance and texture of treated skin was apparent after just 2 applications in 24 hours in this female volunteer.

Winter Xerosis on the Leg



Before

After 24 hours (2 applications)

PDS Cream improves dry, flaky winter skin with 2 applications.

Heel Hyperkeratosis

A female volunteer treated hyperkeratotic heels with an overnight application of PDS Cream for 3 weeks. Hyperkeratosis was completely resolved at the end of treatment.

Severe Hyperkeratosis of the Heel



Before

After 3 weeks
(once-a-day application)

Dry and scaly heels become soft and smooth after an overnight application of PDS Cream for 3 weeks.

Lamellar Ichthyosis

An 18-year-old male patient with lamellar ichthyosis was treated with PDS Cream twice daily for 2 weeks with significant improvement in the appearance and texture of the treated skin. The stratum corneum showed reduced thickness and scaling and improved hydration.

Skin Affected by Lamellar Ichthyosis



Before



After 2 weeks (twice-a-day application)

PDS Cream exfoliates, hydrates, and smoothes the hyperkeratotic skin of lamellar ichthyosis.

Psoriasis Vulgaris

In a randomized, double-blind, bilateral clinical trial, 24 adults with moderate plaque psoriasis used PDS Cream and 6% salicylic acid cream (Salex® (6% Salicylic Acid) Cream, Coria Laboratories, Ltd., Forth Worth, TX, USA) to descale psoriatic plaques on opposite sides of the body twice daily for 2 weeks.⁸ At the end of therapy, PDS Cream reduced scaling and improved overall psoriasis severity significantly better and faster than 6% salicylic acid cream.

Psoriatic Plaque on the Left Knee



Before

After 2 weeks
(twice-a-day application)

PDS Cream reduces scaling and improves overall severity of psoriasis symptoms after 2 weeks of twice daily use.

Summary

- PDS Cream contains a carefully selected 20% combination of alpha/poly/bionic hydroxy acids, including glycolic acid, lactic acid, mandelic acid, gluconolactone, and maltobionic acid, in a highly emollient vehicle.
- PDS Cream markedly improved the clinical appearance and feel of dry scaly thickened skin of winter xerosis, heel hyperkeratosis, and lamellar ichthyosis in case studies.
- PDS Cream was better and faster at descaling psoriatic plaques and improving disease severity than a prescription descaling cream containing 6% salicylic acid in a controlled clinical trial.
- PDS Cream is a highly effective, cosmetically elegant topical treatment for a range of common as well as less common mild to severe dry skin conditions seen in dermatological practice.

References

1. Shwayder T. Disorders of keratinization: diagnosis and management. *Am J Clin Dermatol.* 2004;5(1):17-29.
2. Lodén M. Role of topical emollients and moisturizers in the treatment of dry skin barrier disorders. *Am J Clin Dermatol.* 2003;4(11):771-88.
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7. Brouda I, Edison BL, Weinkauff RL, Green BA. Maltobionic acid, a powerful yet gentle skincare ingredient with multiple benefits to protect skin and reverse the visible signs of aging. Poster presented at the *Summer Academy Meeting of the American Academy of Dermatology*, Chicago, IL, August 4-8, 2010.
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