



ENERGEL – PATENTED LONG-LASTING MOISTURIZING GLOVES

The EnerGel Glove is made with a patented, next-generation technology using Aloe Vera to immediately deliver healthier, more hydrated skin. Preserving the therapeutic benefits of Aloe Vera, EnerGel is specially formulated to enhance these benefits for additional relief.

Overview

How Skin Hydration Works

Adequate skin hydration is critical for maintaining healthy skin. Your skin's ability to hold water is primarily related to the stratum corneum (SC), the epidermis' outer surface.

The SC uses two main mechanisms to hold water:

- The SC's oily region provides a tight and semi-permeable water loss barrier, holding the water molecules within the crowded oily area.
- The presence of low-molecular-weight hygroscopic materials called "Natural Moisturizing Factors" (NMF) inside the skin cells in SC attract water molecules from the surrounding environment, providing moisture to skin cells.

Apart from this, topical moisturizers consist of emollients and humectants to help the skin reduce water loss. Emollients are high-molecular-weight materials that can help prevent skin dehydration. On the other hand, humectants are hygroscopic materials with either high or low-molecular-weight components. High-molecular-weight humectants can contribute to both emollient (occlusion) and water-binding properties as well.

Aloe Vera's Moisturizing Properties

Aloe Vera has been used as a skin moisturizer for years. The skin hydration associated with Aloe Vera is attributed to its polysaccharide, a larger molecule with a molecular weight of over 1000 kDa. The polysaccharide's skin hydration mechanism works through humectant action to penetrate skin cells.

The Problem

Frequent handwashing is a requirement in almost every workplace where gloves are worn, especially in healthcare, food, and laboratory settings. Frequent handwashing happens often causes high-molecular-weight Aloe Vera polysaccharides to stay on the skin and easily wash away, limiting the level of hydration.

A two-week human clinical study demonstrated that Aloe Vera caused immediate skin hydration after short-term application (within one hour) [4]. However, there was no significant difference between short and long-term applications (for two weeks). One possible reason could be the insufficiency of low-molecular-weight polysaccharides to reach and effectively moisturize skin.

Molecular Weight in Lasting Hydration

The molecular weight of active ingredients is important in any topical formulation for skin penetration. An article published in the Journal of Experimental Dermatology indicated that the molecular weight must be under 500 Dalton (0.5 kDa) for proper skin penetration [5]. Thus, it is essential to consider the active ingredient's molecular weight to provide effective moisturization within SC's skin layers, the outermost layers of the epidermis.

In conclusion, since Aloe Vera's molecular weight polysaccharide is higher, it only gives short-term skin hydration and is more easily washed away.

The 'EnerGel' Technology

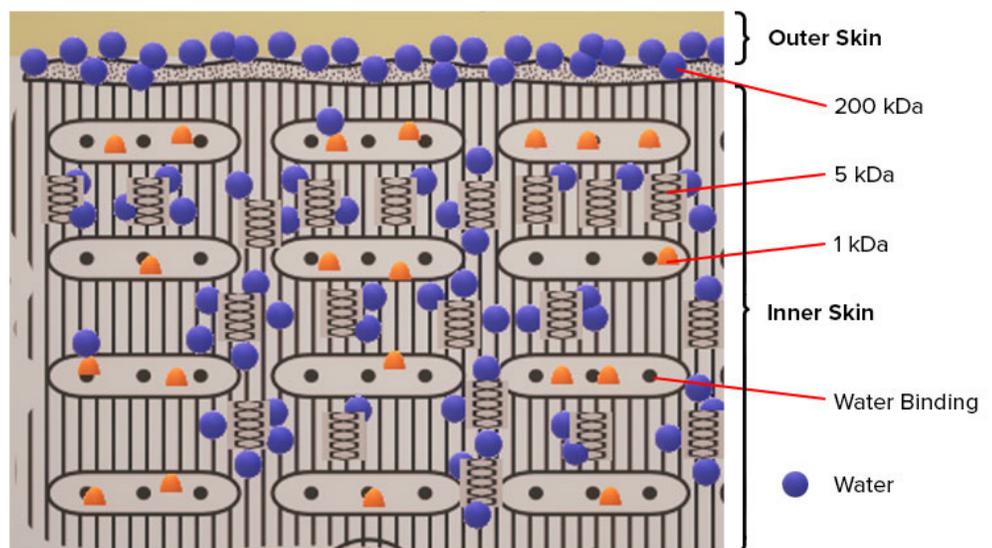
The new EnerGel coating comes with increased Aloe concentration, readily skin-penetrable polysaccharides, and natural moisturizing factors (NMF) with a patented technology. This ensures you get Aloe's benefits at the right size to penetrate skin, for lasting and effective hydration.

Benefits of EnerGel Coating

- Enhanced water retention and hydration within the outermost skin layers (epidermis). This is achieved using three specific molecular sizes of the natural Aloe Vera polysaccharides and improved low-molecular-weight NMFs in the present Aloe.
- Long-lasting hydration that is uncompromised by frequent handwashing.
- Usually, the Aloe polysaccharides stay on the skin's surface due to larger molecular size. The patented EnerGel process reduces this to a size that can easily penetrate skin. Also, the amount of NMF naturally present in Aloe is not significant, as it is concentrated by the patented EnerGel process.
- Enhanced skin soothing and reduced skin inflammation/irritations due to increased Aloe concentration.

The EnerGel Magic

Our technology converts high-molecular-weight Aloe Vera polysaccharides (>1000kDa) into three lower molecular weight fractions to provide better skin hydration (shown above) at the molecular level.





Mechanism of Action

“A” retained on the outer surface of the epidermis, giving a supple, soothing feel.

“B” facilitates effective penetration through the oily regions (intercellular lipid bilayer) of the SC and binds to polar heads of the lipids, hydrating the regions in between the SC cells.

“C” readily penetrates skin cells of the SC, enhancing NMF levels.

EnerGel’s method combines polysaccharides of three sizes with an increased presence of NMF, working to enhance skin hydration in the outer and inner epidermis. by actively binding onto water molecules, so you will still get long-lasting hydration with EnerGel, no matter how much you wash your hands.

Benefits with Proven Results

- Skin Hydration
- Distribution of molecular weights

Summary

Since Aloe Vera on its own has limits with penetrating skin, EnerGel decided to increase the weight of Aloe Vera’s molecules and NMF. This helps deliver the product directly through skin layers, effectively increasing hydration.

References

[1] Josias H. Hamman, Composition and Applications of Aloe Vera Leaf Gel, *Molecules* 2008, 13, 1599-1616.

[2] Vinay K. Gupta, Seema Malhotra, Review Article Pharmacological attribute of Aloe Vera: Revalidation through experimental and clinical studies, *AYU* | Apr-Jun 2012 | Vol 33 | Issue 2 2012.

[3] Kojo Eshun and Qian He, Aloe Vera: A Valuable Ingredient for the Food, Pharmaceutical and Cosmetic Industries, A Review. *Critical Reviews in Food Science and Nutrition*, 44:91–96 (2004).

[4]. Dal’Belo SE, Gaspar LR, Maia Campos PM. Moisturizing effect of cosmetic formulations containing Aloe Vera extract in different concentrations assessed by skin bioengineering techniques. *Skin Res Technol* 2006;12:241-6.

[5]. Jan D. Bos and Marcus M. H. M. Meinardi, The 500 Dalton rule for the skin penetration of chemical compounds and drugs, *Exp Dermatol* 2000: 9: 165–169.