



Transepidermal Water Loss Hydration Potential Study

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Tradename: ABS Rice Lipids Plus

Code: 10350

CAS #: 8016-60-2

Test Request Form #: 1835

Lot Number: 42033P

Sponsor: *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*

Study Director: *Erica Segura*

Principle Investigator: *Maureen Danaher*

Test Performed: Transepidermal Water Loss Hydration Potential Study

Introduction

A comparative *in-vivo* study was conducted over a period of one weeks to evaluate the ability of **ABS Rice Lipids Plus** to enhance barrier function through reduction in coefficient of permeability or Transepidermal Water Loss (TEWL) and increase in moisturization or hydration potential. Results indicate that this material is capable of efficiently increasing hydration and reducing TEWL which allows moisture retention.

The TEWL Hydration Potential Study was conducted to assess the moisturizing ability of **ABS Rice Lipids Plus** in comparison to industry standard controls such as petrolatum, lanolin, and other synthetic or natural oils.

Materials

A. Equipment: DermaLab Skin Combo (Hydration/ Moisture Pin and TEWL Probe)

Methods

Ten volunteers M/F between the ages of 23 and 45 and who were known to be free of any skin pathologies participated in this study. A Dermalab Combo was used to measure barrier function (TEWL) and coefficient of permeability (hydration potential) on the subject's volar forearms. The TEWL instrument consists of a probe that is based upon the vapor gradient with an open chamber. This open chamber design maintains the free natural evaporation from the skin without interfering with the environment over the measurement area. This ensures unbiased and accurate readings. Operation of the water loss module is fully menu drive, allowing for pre-setting and standard deviation or measurement time.

The moisture module provides information about the skin's coefficient of permeability or hydration by measuring the conducting properties of the upper skin layers when subjected to an alternating voltage.

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The method is referred to as a conductance measurement and the output is presented in the unit of uSiemens (uS). A moisture pin probe is the tool used to gather hydration values.

All subjects were asked to apply 5 milligrams of each test material on their volar forearms. Measurements were taken after one week of test material applications. The test material consisted of 2% **ABS Rice Lipids Plus** in a base lotion (Cetaphil Moisturizing for All Skin Types).

Results

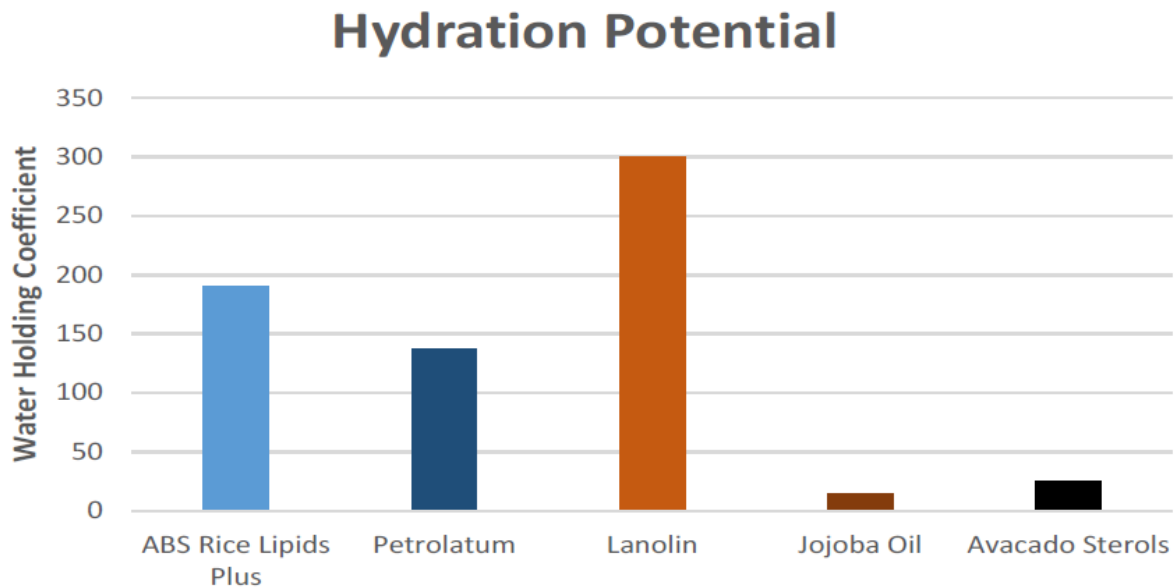


Figure 1: Hydration Potential

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Barrier Function

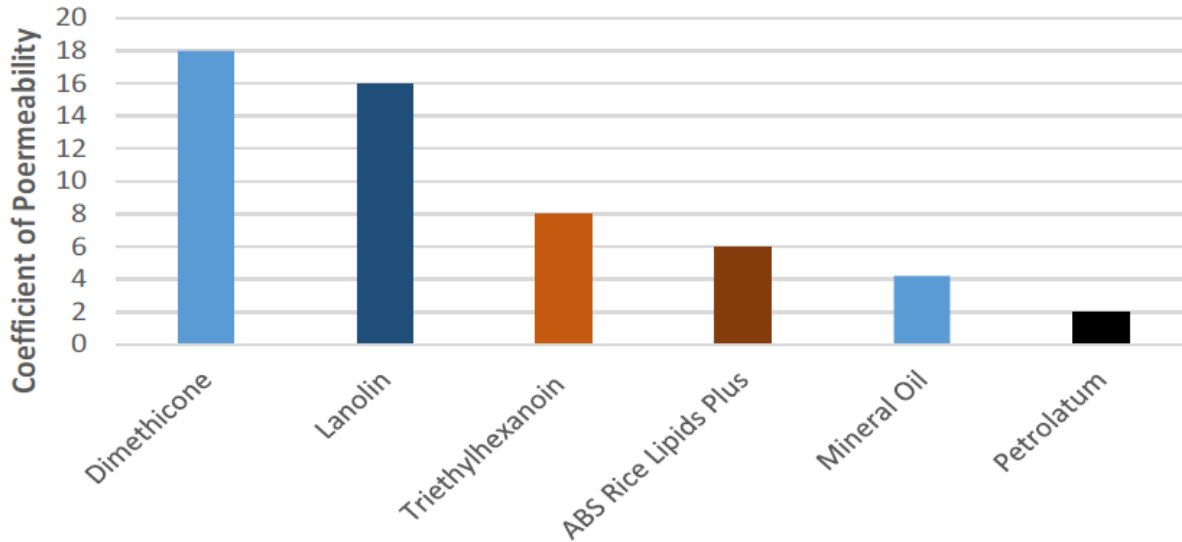


Figure 2: Barrier Function

Discussion

The coefficient of permeability indicates a minimization in TEWL, while hydration potential confirms whether a product is an effective moisturizer. Industry standard waxes, silicones, oils, and esters are typically used as binding agents, though the decision to use these products often varies.

As shown in Figure 1 and 2, results indicate improvements in the minimization of TEWL and moisturization compared to industry controls. After a week of material applications, the solution containing 2.0% **ABS Rice Lipids Plus** decreased TEWL more effectively than the dimethicone, lanolin and triethylhexanoin alone. Additionally, 2.0% **ABS Rice Lipids Plus** demonstrated even more effective barrier protection as observed via hydration, increasing water holding coefficient more so than petrolatum, jojoba oil, and the avocado sterols.

The high water holding capacity coefficient for **ABS Rice Lipids Plus** confirms that it is capable of delivering water to the skin for enhanced hydration, that can lead to greater long term moisturization. There is an inverse relationship between barrier function and coefficient of permeability. Thus, the low coefficient of permeability for **ABS Rice Lipids Plus** indicates that it is excellent for creating a barrier on the skin to maintain hydration.

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