### Abstract

**Objective:** In vivo evaluation of LC HJE in both a sunscreen and a clear alcohol-free, and PEG-free toner, for its potential to increase skin hydration.

**Method:** Sunscreens and toners with and without LC HJE were applied to dry skin on the lower legs of the subjects. Skin hydration measurements (using the Corneometer) were taken at baseline, and one and two hours post-test article application.

**Results:** Figure 1 shows the test article containing 5% LC HJE increased skin hydration up to 67% compared to the vehicle sunscreen without LC HJE. Figure 2 shows LC HJE added to clear, alcohol-free, and PEG-free toners, in conjunction with either glycerin or butylene glycol, increased skin hydration at least 100% as compared to each test article without LC HJE.

**Conclusion:** LC HJE significantly (p<0.05) increased skin hydration up to 67% compared to the vehicle sunscreen and 18% compared to the vehicle toner.

### Introduction / Background

Hydrolyzed jojoba esters are multifunctional ingredients that have been utilized and/or tested in a variety of cosmetic and personal care formulations such as creams/lotions, hand sanitizers, nonwoven wipes, sunscreens, sunless tanners, shampoos / conditioners, toners / astringents, face washes, face (sheet) masks, and oil-free formulations. Its film-forming properties make it ideal for rinse-off products and products that require water resistance or to extend the period of residence time on the skin.

Hydrolyzed jojoba esters are made by the hydrolysis of jojoba oil, and are available in two forms: high and low concentration (LC HJE) [INCI: Hydrolyzed Jojoba Esters (and) Jojoba Esters (and) Water (Aqua)] and low concentration (LC HJE) [INCI: Hydrolyzed Jojoba Esters and (and) Water (Aqua)].

### Skin Hydration

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### Erythema Reduction and Barrier Recovery

**Objective:** In vivo evaluation of HC HJE and LC HJE in a baby wipe solution to decrease erythema and restore barrier function in insulted (i.e. dry shaved) skin.

**Method:** Forearms were dry shaved. Baby wipes with and without 1% LC HJE or 0.2% HC HJE were then applied to the forearms. Skin erythema measurements (using the Mexometer) were taken at baseline, and four hours and twenty-four hours post-test article application. TEWL (transdermal water loss) measurements (using the Tewameter) were taken at baseline, thirty minutes post-shave, and twenty-four hours post-test article application. An additional baby wipe application was made following the four hour measurement.

**Results:** Peak erythema measurements were obtained at 4 hours. Figure 3 shows the decrease in erythema from the 4 hour measurement to the 24 hour measurement. LC HJE, HC HJE, and bisabolol produced statistically significant (p<0.05) decreases in erythema over the vehicle. Figure 4 shows that HC HJE and LC HJE produced statistically significantly (p<0.05) more effective barrier recovery than the vehicle, and LC HJE produced statistically significantly (p<0.05) more effective barrier recovery than bisabolol.

**Conclusion:** LC HJE and HC HJE significantly (p<0.05) increased barrier recovery up to 77% compared to the vehicle.

### References

1. AQP (aquaporin), TNF (Tumor Necrosis Factor), KLK (kallikrein), TXN (Thioredoxin), TXNRD (Thioredoxin Reductase), CAT (Catalase), MKI (Marker of proliferation Ki-67), and END (Endothelin 1).


3. Studied was conducted on a 1% hydrolyzed jojoba esters (i.e. 5% LC HJE solution in glycerin). Final Report available upon request.
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