



# IMPROVED COLOR RETENTION WITH FLORAESTERS K-20W<sup>®</sup> JOJOBA IN A HAIR DYE

CS 16-081



## Floraesters K-20W Jojoba in a Hair Dye Improves Color Retention

### Objective:

To evaluate Floraesters K-20W Jojoba in a hair dye for its potential to improve hair dye color retention.

### Method:

Brown permanent hair dyes with and without 2% Floraesters K-20W Jojoba were applied to wool swatches. Change in color ( $\Delta E$ ) from post-dye was measured after each wash / rinse cycle for a total of 8 cycles.

### Results:

Wool swatches dyed with the permanent hair dye containing 2% Floraesters K-20W Jojoba **retained more color (i.e. slower rate of color loss)** when compared to the vehicle hair dye.

**A = vehicle hair dye + 2% Floraesters K-20W Jojoba / B = vehicle hair dye**

Vehicle Hair Dye (%wt/wt): Water (q.s.), Cetearyl Alcohol (and) Ceteareth-20 (13.0%), Cetyl Alcohol (12.0%), Ethanolamine (5.0%), Oleic Acid (4.0%), Ethoxydiglycol (2.0%), Propylene Glycol (2.0%), Sodium Lauryl Sulfate (1.0%), Sodium Sulfate (1.0%), Ascorbic Acid (0.5%), p-Phenylenediamine (0.5%), and Tetrasodium EDTA (0.2%).

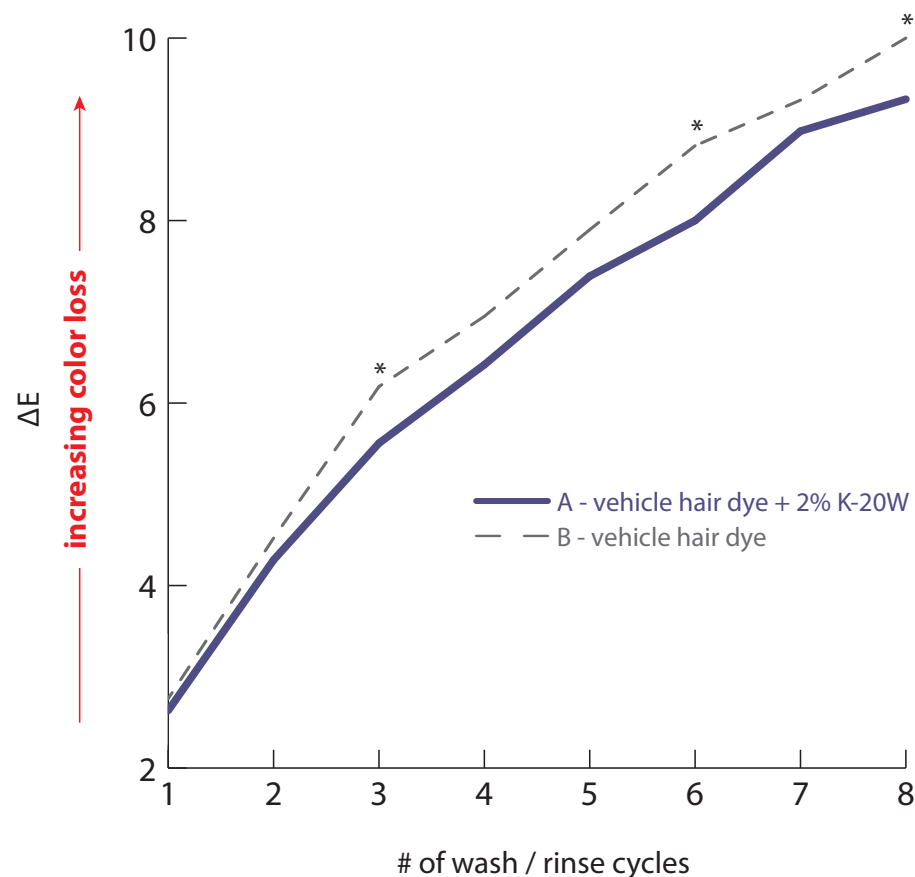
## Floratech Ingredient: Floraesters K-20W Jojoba

The clinical study of Floratech<sup>®</sup> test formulation (CTL\_15-062) was conducted on 2" x 2" worsted gabardine wool swatches (n=3 per test article) obtained from Test Fabrics, Inc. Permanent hair dyes were mixed with a developer (20 standard lift) at a 1:1 ratio immediately before dye application (dye residence time = 30 minutes). The study was blinded, and carried out under controlled temperature and humidity conditions. Color intensity for each swatch was measured using a Colorimeter CL 400 (Courage + Khazaka) at baseline prior to hair dye exposure, and after each wash / rinse cycle for 8 cycles. A wash / rinse cycle consisted of wetting, washing (i.e. rubbing) for 1 minute using a sulfate-free shampoo, rinsing using running lukewarm (32-33°C) tap water for 1 minute, and allowing to air dry in ambient conditions overnight. Color change was calculated from L\*a\*b\* values using the following equation:  $\Delta E = \sqrt{[(L^*_2 - L^*_1)^2 + (a^*_2 - a^*_1)^2 + (b^*_2 - b^*_1)^2]}$ . The hair dye with 2% Floraesters K-20W Jojoba also produced a directionally significant ( $p=0.06173$ ) different intercept than the hair dye without when the number of washes versus  $\Delta E$  was analyzed using linear regression. (Clinical Study 15-062 - Phase I report available upon request.)

\* Indicates statistical significance ( $p<0.05$ ) between test articles.

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### Color Retention



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