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 (ΔE) 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® 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 a total of 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: ΔE = √[(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 ΔE was analyzed using linear regression. (Clinical Study 15-062 - Phase I report available upon request.)