EVALUATION OF COSMOSURF CE-100 AND CE-100HV IN PRESSED POWDER EYESHADOWS

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BACKGROUND

Various cosmetic liquids such as mineral oil, triglycerides, esters and C_{10-22+} alcohols, silicone oils, hybridized aliphatic/silicone oils and gels, and mixtures of any of these are conventional used as liquid binders to hold together pressed powders such as eyeshadows, blushes and make-up powders. CosmoSurf CE-100 and 100HV (INCI on both poly octyldodecyl propyl citrate) are novel naturally-derived polyesters. In this study, CosmoSurf CE-100 and CE-100HV were assessed experimentally against octyl palmitate, a conventional liquid binder, in an eyeshadow system.

Method: Pressed Powder Eyeshadow formulation VOV003-74-1 series of eyeshadows (attached) was prepared using a positive control with ethylhexyl palmitate at 5.00% and experimentals with either 5.00% CosmoSurf CE-100 or 5.00% CosmoSurf CE-100HV (INCI on both: poly octyldodecyl propyl citrate). The eyeshadow base contained talc, sericite and starch filler, magnesium stearate for dry compression aid, colorants, skinfeel/glide enhancers, and a preservative. Filled and pressed pans were be placed on accelerated stability testing and evaluated for general application properties, powder dispersibility, ease of compression, survival of a standard drop test, water resistance, and transfer resistance.

Tests performed: Testing included both objective and subjective evaluations. Objectively, drop testing and accelerated aging were performed. Somewhat objectively, water resistance and transfer resistance methods were utilized. Subjectively, application characteristics of payoff, coverage, adhesion, dispersibility, glazing, creeping and creasing were evaluated.

TEST METHODS:

Drop test. A pan was dropped from a 12” height onto smooth concrete until cake cracking appeared, and the number of drops required to elicit cracking was recorded.

Accelerated aging. A pan was placed in a temperature-controlled 45°C oven and observed for syneresis, discoloration and other vagaries after 24 hours and then at each week until nine weeks were completed.

Water resistance. A small amount of eyeshadow was applied to the back of the hand, allowed to set for 60 seconds, held under cool running water for 60 seconds, and the amount remaining visually on the skin was noted.

Transfer resistance. A small amount of eyeshadow was applied to the back of the hand and allowed to set for 60 seconds. Clean tissue paper was applied over the area, held in place without rubbing

for 60 seconds under light pressure, and the tissue removed. The amount of product transferred to the tissue was observed visually.

Application characteristics. Product was applied to the volar forearm and observed visually for spreadability, coverage and color expression, creeping and creasing, and tactilely for skin smoothness and degree of drag/adhesion.

Dispersibility and compression. Dispersibility of the powder in the bulk under milling was noted visually. Ease of compression in pressing the cake was noted as well.

Glazing. The surface of the pressed cake was rubbed in a circular motion 50 times with a small sponge-tipped eyeshadow applicator, to note if glazing (dark, oily surface hardening) was either imparted or inhibited.

RESULTS:

Drop test. A: 2x. B: 7x. C: 17x.

Accelerated aging. All passed; no discrepancies.

Water resistance. No appreciable difference noted between samples.

Transfer resistance. A transferred lightly more than did either B or C. B and C appeared to transfer equally.

Application characteristics.

Spreadability: All samples spread well; A spread the most readily.
Coverage: All samples exhibited light coverage; payoff and coverage were highest in A; least in C.
Color expression: All samples expressed the same color/appearance.
Creeping: Not detected in any sample.
Creasing: Not detected in any sample.
Skin smoothness: All samples imparted similar skinfeel characteristics.
Degree of drag/adhesion: On application, C exhibited the most adhesion or drag; B less, and A tried to fly away.

Dispersibility. C was only slightly more difficult to spray into the batch; all liquids dispersed evenly on milling, however.

Compression. No differences in compressibility were noted.

Glazing. A darkened the most, but none of the samples truly glazed over.

CONCLUSIONS:

Although only one run of drop testing was performed, it was obvious that CosmoSurf CE-100HV performed unusually well as a binding agent in the eyeshadow tested, in terms of maintaining cake

integrity. However, it perhaps bound the cake too well at the 5.00% level tested. CE-100HV is worth considering either at lower levels in pressed powder systems, or as at least a partial replacement for liquid binders in systems which are difficult to hold together, due either to content or to shape.

FUTURE WORK:

It would be interesting to optimize blends and levels of CosmoSurf CE-100 and CE-100HV, with or without other liquid binders, in various naturals-based and hard-to-press powder systems.