

A Natural Silicone Alternative: Floramac® 10

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SKIN CARE BENEFITS:

Similar Consumer Perception

Each silicone / silicone replacement pair (as listed in Table 1), was compared by consumers (n=27) in a blinded fashion on a 1-5 scale for initial product evaluations and skin feel (30 minutes post-application) observations. The higher the score, the more the listed attribute was perceived by consumers (e.g. a score of 5 for moisturization indicates very moisturized skin, whereas a score of 1 indicates dry skin). For the texture attribute, a higher score indicates a thicker silicone or silicone replacement. The results for each pair appear below in Figures 1-3.¹

Figure 1. Floramac 10 vs. Cyclopentasiloxane

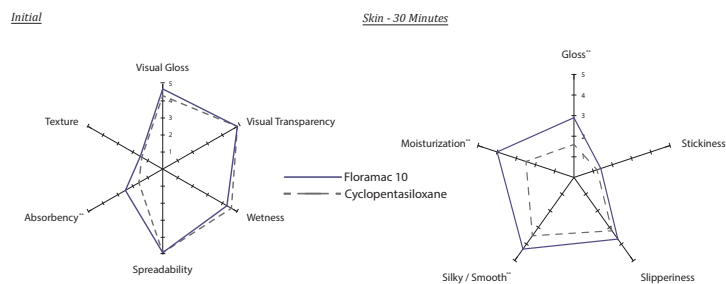


Figure 1. Initially, there were few perceivable differences; however 30 minutes post-application, **Floramac 10 left the skin perceivably more glossy, silky / smooth, and moisturized.**

Figure 2. Floramac 10+² vs. Dimethicone (20cs)

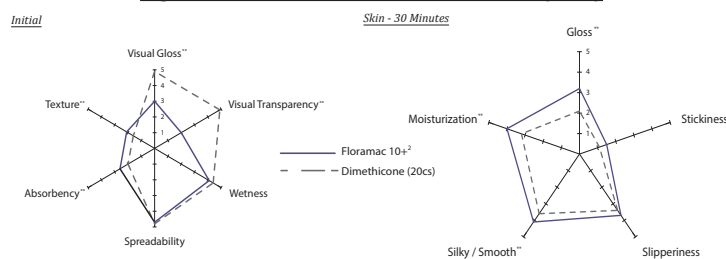


Figure 2. Initially, Dimethicone (20cs) was visually more glossy, more transparent, and thinner (texture). Thirty minutes post-application, the gelled **Floramac 10+² left the skin perceivably more glossy, silky / smooth, and moisturized.**

Figure 3. Floramac 10+³ vs. Phenyl Trimethicone

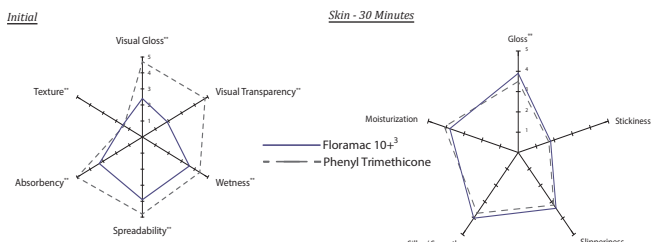


Figure 3. Initially, Phenyl Trimethicone was visually more glossy, more transparent, wetter, more absorbent, and thinner (texture); however, there were **few perceivable differences between the Floramac 10+³ and Phenyl Trimethicone 30 minutes post-application to the skin.**

ABSTRACT: *Objective* - The objective of these studies was to demonstrate Floramac 10 (INCI: Ethyl Macadamiate) as a natural silicone alternative for skin and hair care products. *Methods* - In a series of double-blind, randomized, IRB-approved clinical studies, consumers (n=27) evaluated Floramac 10 versus Cyclopentasiloxane and Dimethicones of various viscosities for the following product and skin-feel characteristics: gloss, texture, absorbency, spreadability, wetness, moisturization, stickiness, silkiness/smoothness, and slipperiness. The same ingredients were also evaluated using bioinstrumentation for skin radiance (i.e. gloss) and hydration (n=15). Additionally, Floramac 10 was evaluated versus Cyclopentasiloxane and Phenyl Trimethicone for the following hair care characteristics: comb force, breakage, shine, heat protection and consumer preference. *Results* - Floramac 10 provided a similar skin-feel to that of the silicones as perceived by consumers, and increased skin radiance and moisturization when evaluated using bioinstrumentation. Floramac 10 also decreased wet / dry comb force and breakage, and increased shine and consumer perception of hair better than silicones. *Conclusion* - Floramac 10 is a viable natural silicone alternative.

Increased Radiance and Hydration

Each silicone / silicone replacement pair (as listed in Table 1) loaded at 5% in a simple o/w emulsion was compared for skin radiance (i.e. gloss) and hydration⁴ in a vehicle-controlled, randomized, double-blind clinical study (n=15). The results for each pair appear below in Figure 4.

Figure 4. Skin Radiance and Hydration

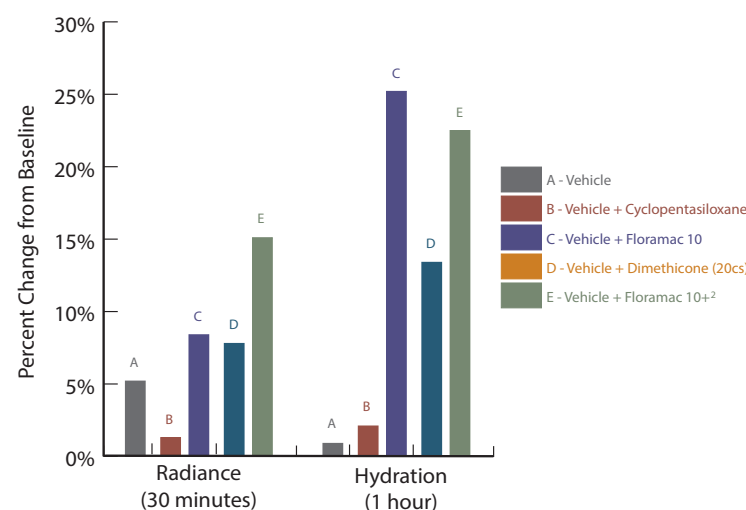


Figure 4. The inclusion of **Floramac 10 increased skin radiance and hydration (p<0.05)** more than each respective silicone.

Table 1. Physical Properties

Test Emollient	Viscosity (cP)	Refractive Index
Floramac 10	7-8	1.44
Cyclopentasiloxane	4-5	1.40
Floramac 10+ ²	548-549	not transparent
Dimethicone (20cs)	19-20	1.40
Floramac 10+ ³	3205-3206	1.46
Phenyl Trimethicone	25-26	not transparent

REFERENCES:

1. p<0.05 (**) and p<0.10 (*) where indicated.
2. Gelled with 0.5% Silica (Cabot).
3. Gelled with 5.0% Glyceryl Tribehenate/Isostearate/Eicosadioate (Nissin Oil); 2.0% Aluminum Starch Octenylsuccinate (and) Acrylates Copolymer (and) Magnesium Carbonate (AkzoNobel Chemicals); and 5.0% Caprylic/Capric Triglyceride (and) Stearalkonium Hectorite (and) Propylene Carbonate (Elementis Specialties).
4. Skin radiance (i.e. gloss) and hydration measurements were captured using the Glossometer GL 200 and Corneometer CM 825, respectively; both instruments are products of Courage+Khazaka (Köln, Germany).

HAIR CARE BENEFITS:

Decreased Comb Force

Leave-in hair serums containing either Floramac 10, Cyclopentasiloxane, or Phenyl Trimethicone, were applied to wet, double-bleached, naturally curly hair tresses. Wet and dry comb force measurements were taken at baseline and post-treatment. The results appear below in Figure 5.

Figure 5. Comb Force Reduction

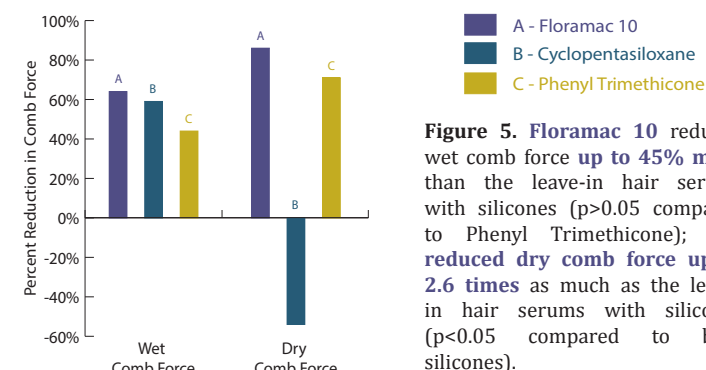


Figure 5. Floramac 10 reduced wet comb force **up to 45% more** than the leave-in hair serums with silicones (p>0.05 compared to Phenyl Trimethicone); and **reduced dry comb force up to 2.6 times** as much as the leave-in hair serums with silicones (p<0.05 compared to both silicones).

Increased Hair Shine

Naturally straight, brown hair tresses were treated with leave-in hair serums containing Floramac 10, Cyclopentasiloxane, or Phenyl Trimethicone. Hair gloss measurements were taken before and after hair serum treatment, with heat (i.e. flat iron) and without heat. The results appear below in Figure 6.

Figure 6. Hair Shine

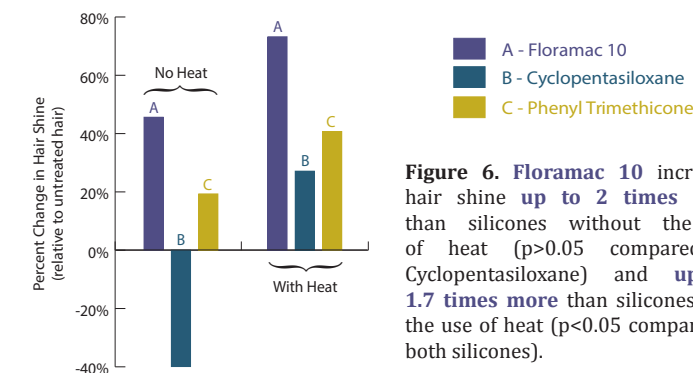


Figure 6. Floramac 10 increased hair shine **up to 2 times** more than silicones without the use of heat (p>0.05 compared to Cyclopentasiloxane) and **up to 1.7 times** more than silicones with the use of heat (p<0.05 compared to both silicones).

Decreased Breakage

Leave-in hair serums containing either Floramac 10, Cyclopentasiloxane, or Phenyl Trimethicone were applied to wet, double-bleached, naturally curly hair tresses, which were then blow dried and combed 1000 times. The broken fibers were collected and counted. The results appear below in Figure 7.

Figure 7. Hair Breakage

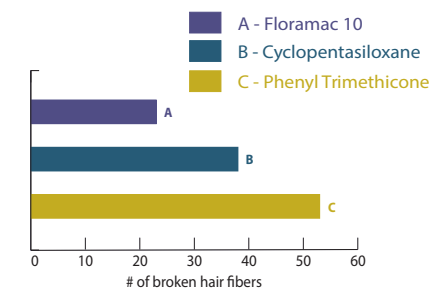


Figure 7. The leave-in hair serum containing **Floramac 10 reduced the number of broken hair fibers up to 39% better** than the leave-in hair serum containing Cyclopentasiloxane, and **up to 57% better** than the leave-in hair serum containing Phenyl Trimethicone (p<0.05).

Heat Protection

Leave-in hair serums containing either Floramac 10, Cyclopentasiloxane, or Phenyl Trimethicone were applied to wet, double-bleached, naturally curly hair tresses, which were then blow dried, flat ironed (100 passes), and combed 1000 times. The broken fibers were collected and counted. The results appear below in Figure 8.

Figure 8. Heat Protection

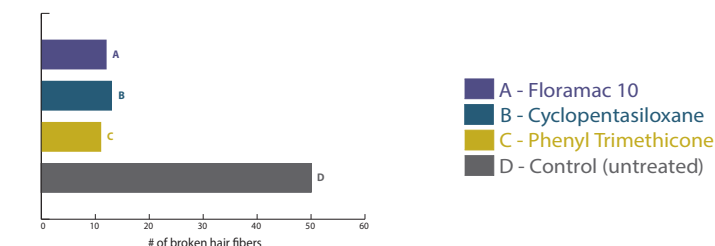


Figure 8. The leave-in hair serum containing **Floramac 10 performed similarly to the silicones, Cyclopentasiloxane and Phenyl Trimethicone, and 76% better** than untreated hair (p<0.05).

Improved Consumer Preference

Leave-in hair serums containing either Floramac 10 or Phenyl Trimethicone were compared by consumers (n=24) in a half head, randomized, double-blind fashion after one week of every other day product use. The results appear below in Figure 9.¹

Figure 9. Consumer Preference

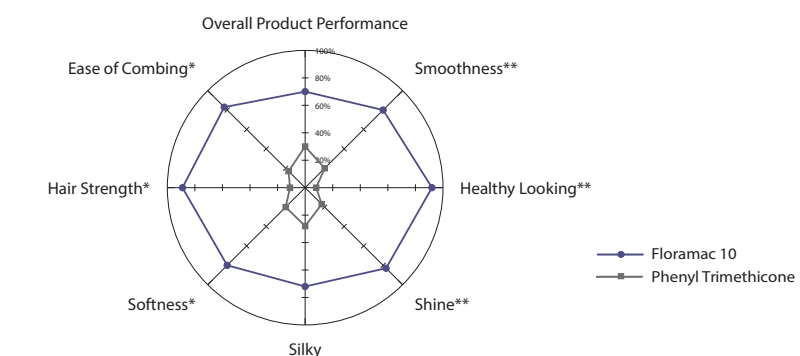


Figure 9. At least **80% of consumers preferred** the leave-in hair serum with **Floramac 10 for smoothness, shine, softness, and ease of combing** compared to the leave-in hair serum with Phenyl Trimethicone.

CONCLUSIONS

- Floramac 10 is a viable natural silicone alternative for both skin care and hair care applications.
- Floramac 10 provides skin hydration and radiance.
- Floramac 10 conditions and protects hair.
- Floramac 10 increases hair shine.



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For the Society of Cosmetic Chemists
Technology Showcase

December 11-12, 2017
New York, NY



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