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LAB REPORT

PROJECT TITLE: Silwax Products

DATE: August 5, 2009

OBJECTIVE: To make various personal care products using our standard Silwax and Silwax M series.

WORK TO BE DONE:

Using the following Silwax products:

- | | | |
|----------------------------|-------------------|--------------------|
| 1. Silwax D222 | 2. Silwax D226 | 3. Silwax J1026 |
| 4. Silwax D3026 | 5. Silwax Di 5026 | 6. Silwax D221M |
| 7. Silwax J221M | 8. Silwax J218M | 9. Silwax Di 1021M |
| 10. Control with no Silwax | | |

Make the following products: lipstick lipgloss face cream body cream foundation

Record:

stability melt point softness feel (scale out of 10) compatibility

1. LIPSTICK

Formulations and Results are listed in Table 1 ~ Table 4

Table 1 Formulations for Natural Lipsticks

Ingredients	FL501	FL501 A	FL501 B	FL501 C	FL501 D	FL501 E	FL501 F	FL501 G	FL501 H	FL501 I
Part A	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%
Castor Oil	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Canola Oil	14	14	14	14	14	14	14	14	14	14
Silube CO D2	1	1	1	1	1	1	1	1	1	1
Petrolatum	4	0	0	0	0	0	0	0	0	0
Silwax D222	0	4	0	0	0	0	0	0	0	0
Silwax D226	0	0	4	0	0	0	0	0	0	0
Silwax J1026	0	0	0	4	0	0	0	0	0	0
Silwax D3026	0	0	0	0	4	0	0	0	0	0
Silwax Di 5026	0	0	0	0	0	4	0	0	0	0
Silwax D221M	0	0	0	0	0	0	4	0	0	0
Silwax J221M	0	0	0	0	0	0	0	4	0	0
Silwax J218M	0	0	0	0	0	0	0	0	4	0
Silwax Di 1021M	0	0	0	0	0	0	0	0	0	4
Siltech CE-2000	5	5	5	5	5	5	5	5	5	5
Coconut Oil	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Sesame Oil	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Shea Butter	2	2	2	2	2	2	2	2	2	2
Cocoa Butter	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Eutanol G	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43
Zenigloss	3	3	3	3	3	3	3	3	3	3
Beeswax	16	16	16	16	16	16	16	16	16	16
Carnauba Wax	11	11	11	11	11	11	11	11	11	11
Part B	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
TiO2 in Castor Oil (40%)										
Cos. Yellow in Castor Oil (24%)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
D&C Red 7 in Castor Oil (24%)	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25
Part C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
BHT										
Flemnenco Sparkle Gol 220J	1	1	1	1	1	1	1	1	1	1
Pearl-Glo UVR PG 1086	1	1	1	1	1	1	1	1	1	1
Colorona Carmine Red	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Colorona Red Gold	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
DC 9701	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Total	100	100	100	100	100	100	100	100	100	100

Procedure:

Into a cleaned and sanitized vessel equipped with a propeller mixer, add all the ingredients of Phase A, then heat up to 85 ~ 90 C. Once melted, add Phase B, blend well and check dispersion. Add Phase C and mix well until uniform. Pour into molds at 70 C.

Table 2 Specifications for Natural Lipsticks

Specifications	FL501	FL501A	FL501B	FL501C	FL501D	FL501E	FL501F	FL501G	FL501H	FL501I
S.G.	0.968	0.970	0.971	0.968	0.968	0.969	0.968	0.968	0.969	0.969
Appearance	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like
Melt Point	51-64	51-64	52-65	51-64	51-64	51-64	51-64	51-64	51-64	51-64
Hardness*	76	76	76	75	75	75	75	75	75	75
Stability @43 C	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Feel (1-10, 10 the best)	8	8	7.5	8	8	8	8	8	9	8
Compatibility	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

* Hardness was tested by PTC Durometer type 00 Model 411. The data was the average of six-time results.

Table 3 Formulations for Pretty Lipsticks

Ingredients	FL502	FL502 A	FL502 B	FL502 C	FL502 D	FL502 E	FL502 F	FL502 G	FL502 H	FL502 I
	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%
Part A										
Castor Oil	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3
Eutanol G	14	14	14	14	14	14	14	14	14	14
Silube CO D2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Petrolatum	3	0	0	0	0	0	0	0	0	0
Silwax D222	0	3	0	0	0	0	0	0	0	0
Silwax D226	0	0	3	0	0	0	0	0	0	0
Silwax J1026	0	0	0	3	0	0	0	0	0	0
Silwax D3026	0	0	0	0	3	0	0	0	0	0
Silwax Di 5026	0	0	0	0	0	3	0	0	0	0
Silwax D221M	0	0	0	0	0	0	3	0	0	0
Silwax J221M	0	0	0	0	0	0	0	3	0	0
Silwax J281M	0	0	0	0	0	0	0	0	3	0
Silwax Di 1021M	0	0	0	0	0	0	0	0	0	3
Siltech CE2000	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Silwax D02	1	1	1	1	1	1	1	1	1	1
Permethyl 104A	11	11	11	11	11	11	11	11	11	11
Jojoba Oil Refined	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Avocado Oil	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Meadowfoam Seed Oil	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Zenigloss	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
Candelilla Wax	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Ozokerite Wax 164/170	8	8	8	8	8	8	8	8	8	8
Beeswax	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Carnauba Wax	3	3	3	3	3	3	3	3	3	3
Part B	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
TiO2 in Castor Oil (40%)										
Cos. Yellow in Castor Oil (24%)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
D&C Red 7 in Castor Oil (24%)	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25
Part C										
BHT	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Flemnenco Sparkle Gol 220J	1	1	1	1	1	1	1	1	1	1
Pearl-Glo UVR PG 1086	1	1	1	1	1	1	1	1	1	1
Colorona Carmine Red	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Colorona Red Gold	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total	100	100	100	100	100	100	100	100	100	100

Procedure:

Into a cleaned and sanitized vessel equipped with a propeller mixer, add all the ingredients of Phase A, then heat up to 85 ~ 90 C. Once melted, add Phase B, blend well and check dispersion. Add Phase C and mix well until uniform. Pour into molds at 70 C.

Table 4 Specifications for Pretty Lipsticks

Specifications	FL502	FL502A	FL502B	FL502C	FL502D	FL502E	FL502F	FL502G	FL502H	FL502I
S.G.	1.018	1.019	1.020	1.018	1.018	1.018	1.019	1.018	1.018	1.018
Appearance	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like	Smooth bullet-like
Melt Point	50-62	50-62	51-63	50-62	50-62	50-62	50-62	50-62	50-62	50-62
Hardness*	70	70	71	70	70	70	70	70	70	70
Stability @43 C	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Feel (1-10, 10 the best)	8	8	7.5	8	8	8	8	8	9	8
Compatibility	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

* Hardness was tested by PTC Durometer Type 00 Model 411. The data was the average of six-time results.

2. LIPGLOSS

Table 5. Formulations for Natural Lipgloss

Ingredients	FG101	FG101	FG101	FG101	FG101	FG101	FG101	FG101	FG101	FG101
Part A	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%
Castor Oil	72.78	72.78	72.78	72.78	72.78	72.78	72.78	72.78	72.78	72.78
Silube CO D2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Silwax 3H-MS	1	1	1	1	1	1	1	1	1	1
Petrolatum	2	0	0	0	0	0	0	0	0	0
Silwax D222	0	2	0	0	0	0	0	0	0	0
Silwax D226	0	0	2	0	0	0	0	0	0	0
Silwax J1026	0	0	0	2	0	0	0	0	0	0
Silwax D3026	0	0	0	0	2	0	0	0	0	0
Silwax Di 5026	0	0	0	0	0	2	0	0	0	0
Silwax D221M	0	0	0	0	0	0	2	0	0	0
Silwax J221M	0	0	0	0	0	0	0	2	0	0
Silwax J281M	0	0	0	0	0	0	0	0	2	0
Silwax Di 1021M	0	0	0	0	0	0	0	0	0	2
Silwax D02	1	1	1	1	1	1	1	1	1	1
Coconut Oil	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Sesame Oil	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Shea Butter	1	1	1	1	1	1	1	1	1	1
Cocoa Butter	1	1	1	1	1	1	1	1	1	1
Olive Oil	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Zenigloss	1	1	1	1	1	1	1	1	1	1
Part B	6	6	6	6	6	6	6	6	6	6
Beeswax										
Carnauba Wax	2	2	2	2	2	2	2	2	2	2
Part C	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
D&C Red 7 in Castor Oil (24%)										
DC-9701 Cosmetic Powder	2	2	2	2	2	2	2	2	2	2
Flemnenco Sparkle Gol 220J	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Colorona Carmine Red	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Timiron MP-20 Fine Gold	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Part D										
BHT	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vitamine E Acetate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100	100	100	100	100	100	100	100	100	100

Procedure:

Into a cleaned and sanitized vessel equipped with a propeller mixer, add all the ingredients of Phase A and Phase B, heat up to 85 ~ 90 C. Once melted add Phase C, blend well to uniformity and check dispersion. Cool to 70 C, add ingredients of Phase D, and mix well. Then pour into component.

Table 6 Specifications for Natural Lip-gloss

Specifications	FG101	FG101A	FG101B	FG101C	FG101D	FG101E	FG101F	FG101G	FG101H	FG101I
S.G.	0.941	0.942	0.943	0.941	0.941	0.941	0.941	0.942	0.941	0.941
Gloss*	71.9	71.5	7.01	71.4	70.3	71.3	71.6	70.9	71.8	71.2
Appearance	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid	Smooth Shiny semi-solid
Melting Point	43-46	43-46	44-47	43-46	43-46	43-46	43-46	43-46	43-46	43-46
Stability @45 C	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks	Stable for 2 weeks
Feel (1-10, 10 the best)	8	8	8	8	8	8	8	8	8.5	8
Compatibility	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

* Gloss was tested by a BYK Micro-gloss (60) Gloss-meter. The maximum value is 95.7

Table 7. Formulations for Pretty Lipgloss

Ingredients	FG102	FG102 A	FG102 B	FG102 C	FG102 D	FG102 E	FG102 F	FG102 G	FG102 H	FG102 I
Part A	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%	W/W%
Indopol H1500	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8
Eutanol G	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8
Silwax 3H-MS	1	1	1	1	1	1	1	1	1	1
Petrolatum	6	0	0	0	0	0	0	0	0	0
Silwax D222	0	6	0	0	0	0	0	0	0	0
Silwax D226	0	0	6	0	0	0	0	0	0	0
Silwax J1026	0	0	0	6	0	0	0	0	0	0
Silwax D3026	0	0	0	0	6	0	0	0	0	0
Silwax Di 5026	0	0	0	0	0	6	0	0	0	0
Silwax D221M	0	0	0	0	0	0	6	0	0	0
Silwax J221M	0	0	0	0	0	0	0	6	0	0
Silwax J281M	0	0	0	0	0	0	0	0	6	0
Silwax Di 1021M	0	0	0	0	0	0	0	0	0	6
Silwax D02	2	2	2	2	2	2	2	2	2	2
Zenigloss	3	3	3	3	3	3	3	3	3	3
Siltech CE-2000	6	6	6	6	6	6	6	6	6	6
Thixcin R	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Part B	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Beeswax										
Ozokerite Wax 164/170	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Part C	1	1	1	1	1	1	1	1	1	1
D&C Red 7 in Castor Oil (24%)										
DC-9701 Cosmetic Powder	1	1	1	1	1	1	1	1	1	1
Flemnenco Sparkle Gol 220J	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Colorona Carmine Red	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Timiron MP-20 Fine Gold	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Part D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
BHT										
Vitamine E Acetate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100	100	100	100	100	100	100	100	100	100

Procedure:

Into a cleaned and sanitized vessel equipped with a propeller mixer, add all the ingredients of Phase A and Phase B, heat up to 85 ~ 90 C. Once melted add Phase C, blend well to uniformity and check dispersion. Cool to 70 C, add ingredients of Phase D, and mix well. Then pour into component.

Acetate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100	100	100	100	100	100	100	100	100	100

Procedure:

1. Into a cleaned and sanitized stainless steel tank equipped with a propeller mixer, add all the ingredients of Phase A, mix until homogeneous. Then heat up to 75 ~ 80 C.
2. In a separate clean and sanitized vessel, add all the ingredients of Phase B, and heat up to 75 ~ 80 C, mix well using Bamix until uniform, and check color dispersions.
3. Add Phase A into Phase B slowly at 78 ~ 80 C, and continue stirring.
4. Keep the temperature at 78 ~ 80 C for 5 minutes and cool down room temperature.
5. Add the ingredients of Phase C one by one and mix well.

Table 14. Specifications of Liquid Foundation:

Specification	FM607	FM607 A	FM607 B	FM607 C	FM607 D	FM607 E	FM607 F	FM607 G	FM607 H	FM607 I
Viscosity (cps)	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
pH	6.11	6.12	6.08	6.13	6.08	6.09	6.13	6.08	6.10	6.11
Appearance	White Cream	White Cream	White Cream	White Cream	White Cream	White Cream	White Cream	White Cream	Porcelain Cream	White Cream
Stability @50 C	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Feel (1-10, 10 the best)	9	9	9	9	9	9	9	9	9.5	9
Compatibility	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

Summary

Viscosity, ease of formulation and stability effects of Silwax in lipstick, lipgloss, face cream, body cream and foundation (Scale used is 1 to 10, 10 being the best, only for viscosity, ease of formulation, stability, feel, and appearance. Viscosity was tested by using Brookfield, LVT, #4 spindle, 12 rpm.)

Effects of Silwax on Personal Care Products	Lipstick	Lipgloss	Face Cream	Body Cream	Foundation	Total
Silwax D222	Viscosity	5.8	6.5	8.5	8.5	8.5
	Ease of Formulation	9	9	9	9	9
	Stability	8.5	5	9	9	9
Silwax D226	Feel	8.5	8.5	8.5	8.5	8.5
	Appearance	8.5	8.5	8.5	8.5	8.5
	Viscosity	8	8	8.5	8.5	9
	Ease of Formulation	9	9	9	9	9
	Stability	9	6	9	9	9
	Feel	5	5	7.5	7.5	8
Silwax J1026	Appearance	8	8	8.5	8.5	8.5
	Viscosity	6.0	6.5	8.5	8.5	8.5
	Ease of Formulation	9	9	9	9	9
	Stability	8.5	5.5	9	9	9
	Feel	8.5	8.5	8	8	8
	Appearance	8.5	8.5	8.5	8.5	8.5
Silwax D3026	Viscosity	4.5	5	8.5	8.5	8.5
	Ease of Formulation	9	8.5	9	9	9
	Stability	8.5	8.5	9	9	9
	Feel	8.5	8.5	8.5	8.5	8.5
	Appearance	8	8	9	9	9
	Viscosity	4.5	5	8.5	8.5	8.5
Silwax Di5026	Ease of Formulation	9	9	9	9	9

	Stability	8	6.5	9	9	9
	Feel	8.5	8.5	8.5	8.5	8.5
	Appearance	8.5	8.5	9	9	9
Silwax D221M	Viscosity	4.5	5	8.5	8.5	8.5
	Ease of Formulation	9	9	9	9	9
	Stability	8	8.5	9	9	9
	Feel	8.5	8.5	9	9	9
	Appearance	8.5	8.5	9	9	9
Silwax J221M	Viscosity	4.5	5	8.5	8.5	8.5
	Ease of Formulation	9	9	9	9	9
	Stability	8	7.5	9	9	9
	Feel	8.5	8.5	9	9	9
	Appearance	8.5	8.5	9	9	9
Silwax J281	Viscosity	5	6	8.5	8.5	9
	Ease of Formulation	9	9	9	9	9
	Stability	8.5	9	9	9	9
	Feel	9	9	9	9	9
	Appearance	9	9	9	9	9
Silwax Di1021M	Viscosity	4.5	5.5	8.5	8.5	9
	Ease of Formulation	9	9	9	9	9
	Stability	8.5	9	9	9	9
	Feel	8.5	8.5	8.5	8.5	8.5
	Appearance	8.5	8.5	8.5	8.5	8.5

CONCLUSIONS:

1. In color cosmetics, the amount of Silwax used will have an effect on the final formulation due to the different melting point of the wax. In the emulsion systems, the amount of Silwax used does not have as much of an influence in the final formulation, and they provide great skin feel, cushion and play time in cream and lotions.
2. All Silwax products provide softness and elegant skin feel to personal care products. They can be used as a lubricant, softener, and as an agent to minimize syneresis in pigmented products. They can also be formulated to improve slip, gloss, pay-off, conditioning and coverage in color cosmetic applications.
3. Multidomain silicone Silwax products provide more excellent gloss, softness, barrier properties and excellent lubrication.
4. In general, Silwax J281M is the best for its easy formulation, compatibility, stability, excellent lubrication, gloss and amazing skin feel.
5. The combination of Silube J208-212 and Silube J208-412 is a good O/W emulsifier.
6. Silube J208-612 is a good W/O emulsifier.

RECOMMENDATIONS

1. The use level for Silwax in lipstick is 2 ~ 4 wt% of the formulation.
2. Recommended usage level for Silwax in lip-gloss is 3 ~ 6 wt% of the formulation.

3. In foundation formulation, the percentage of Silwax is 1 ~ 3 wt%.
4. In face cream, body cream or skin lotion, recommended usage level for Silwax is 2 ~ 4 wt%.

