FOAM IMPROVER FROM VEGETABLE

SALACOS™ HS-6C

Characteristic 1

SALACOS™ HS-6C can Provide Moisturizing Effect and Excellent Foam for Cleansers

Possible to Maintain Moisture in the Skin after Wash

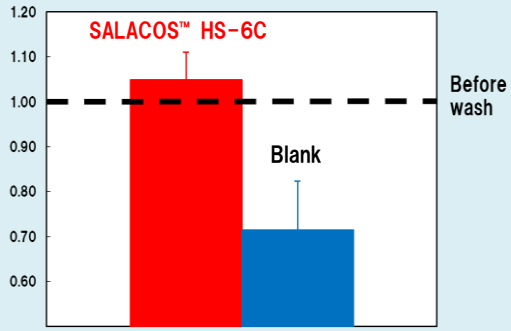


Fig.1 Relative Amount of Moisture in the Skin After Wash ("Before"=1)

〈Test Method〉
1. Cleanse the skin with soap.
2. Keep the skin at reference condition (20℃, 40%) for 30 minutes.
3. Measure amount of moisture in the skin (as Before Wash) by a skin hygrometer※1.
4. Wash the skin with Creamy Foaming Cleanser (formula1, page4).
5. Keep the skin at reference condition (20℃, 40%).
6. Measure amount of moisture in the skin (as After Wash) and compare it to Before Wash.
7. Measure amount of moisture in the same way above regarding Blank Foaming Cleanser (replace SALACOS™ HS-6C by water).

※1 SKICON-200, I.B.S Co., Ltd.

Elastic and Fine Foam

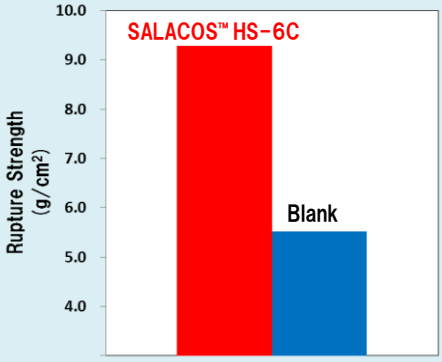


Fig.2 Elasticity of Foam

〈Procedure of Foam〉
1. Weigh 1g of Creamy Foaming Cleanser (fomula1, page4) and 20g of water.
2. Heat 1 to 30℃ and foam it while stirring by a disper mixer (3,000rpm) for 2 minutes.
3. Prepare foam of Blank Foaming Cleanser (replace SALACOS™ HS-6C by water) in the same way above.

〈Test Method〉
1. Measure elasticity of the foam by a rheometer※2. (reference to Fig.2)
2. Apply the foam on a glass plate and observe its appearance by a microscope (x 200). (reference to Fig.3)

※2 RT-200•D, Rheotech Co., Ltd.
[Condition: Adapter 18mmϕ, Speed 6cm/min., Ratio 200g]

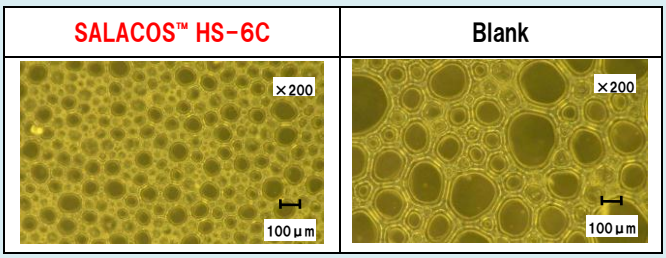


Fig.3 Observation of Foam through the Microscope

Excellent Texture for Wash

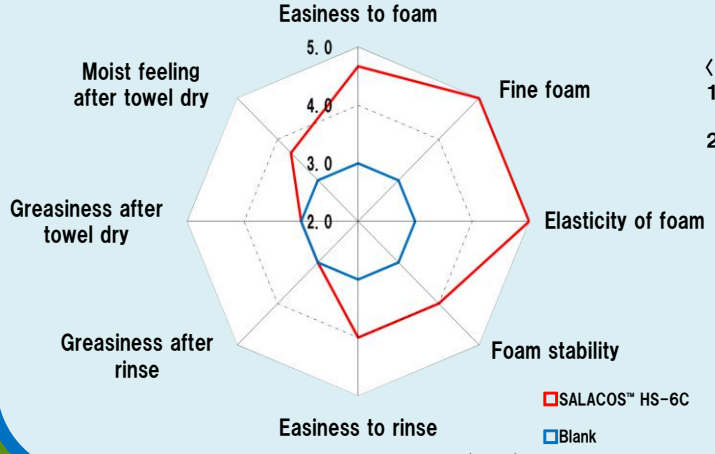


Fig.4 Evaluation of Texture (n=6)

〈Test Method〉
1. Make foam of Creamy Foaming Cleanser (fomula1, page4) and Blank Foaming Cleanser (replace SALACOS™ HS-6C by water).
2. Evaluate the texture based on items of Fig.4

Characteristic 2

SALACOS™ HS-6C is Superior in Pigment Dispersing Ability

Excellent Pigment Dispersing Ability with Low Wet Point and No Difference between Fluidity Point-Wet Point

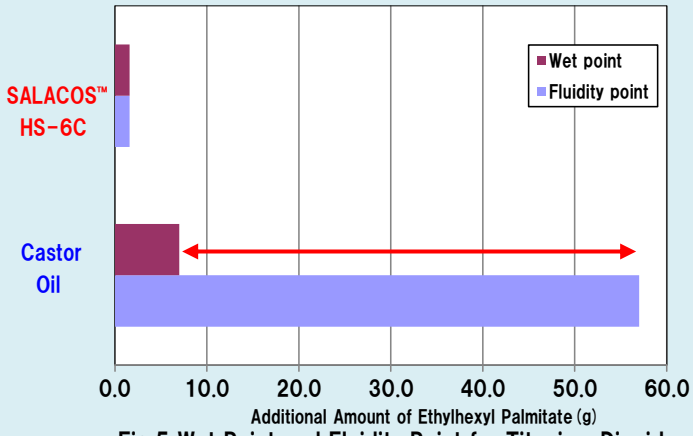


Fig.5 Wet Point and Fluidity Point for Titanium Dioxide

<Test Method>

1. Mix Oil Sample (4g) and Titanium Dioxide (20g) uniformly, and keep it at 25℃.
2. Add Ethylhexyl Palmitate※1 to 1 while stirring until the mixture becomes a lump. The amount of added Ethylhexyl Palmitate is "Wet Point".
3. Add Ethylhexyl Palmitate to 2 while stirring until the mixture starts flowing. All the amount of added Ethylhexyl Palmitate is "Fluidity Point".
4. Evaluate the pigment dispersing ability by Wet Point and the difference between Fluidity Point -Wet Point.

Table1 Wet Point and Fluidity Point for Titanium Dioxide (g)

Oil Sample	Wet Point	Fluidity Point	Difference
SALACOS™ HS-6C	1.6	1.6	0.0
Castor Oil	7.0	57.0	50.0

Possible to Make Texture Smooth for Formulations Containing Pigments

SALACOS® HS-6C

Blank

Fig.6 Effect of Dispersing with SALACOS™ HS-6C in W/O Sunscreen Milk (Table2)

Table2 W/O Sunscreen Milk

Ingredient	SALACOS™ HS-6C	Blank
SALACOS™ HS-6C	2.00	—
SALACOS™ WO-6※2	0.50	0.50
SALACOS™ 99※3	5.00	5.00
T.I.O™※4	5.00	5.00
NOMCORT™ TAB※5	7.50	7.50
SALACOS™ 816T※6	5.00	5.00
NOMCORT™ HK-G※7	1.00	1.00
Cyclopentasiloxane	5.00	5.00
Dimethicone (6cs)	8.50	8.50
Disteardimonium Hectorite	1.00	1.00
Cetyl Dimethicone Copolyol	0.50	0.50
PEG-3 Dimethicone	0.50	0.50
Titanium Dioxide	10.00	10.00
Zinc Oxide	5.00	5.00
Polymethy Methacrylate	4.00	4.00
Water	30.35	32.35
Butylene Glycol	5.00	5.00
Glycerin	3.00	3.00
Sodium Chloride	1.00	1.00
Ethylparaben	0.10	0.10
Butylparaben	0.05	0.05
Total	100.00	100.00

(Wt/Wt%)

※1 SALACOS™ P-8
※2 DIPENTAERYTHRITYL TRI-POLYHYDROXYSTEARATE
※3 ISONONYL ISONONANOATE
※4 TRIETHYLHEXANOIN
※5 ETHYLHEXYL METHOXYCINNAMATE
※6 CETYL ETHYLHEXANOATE
※7 GRYCERYL BEHENATE/EICOSADIOATE

Characteristic 3

SALACOS™ HS-6C can Disperse Pigments Uniformly and Improve SPF Value in Low-Viscosity Formulations

Possible to Inhibit Precipitation of Pigments in Low-Viscosity Sunscreen

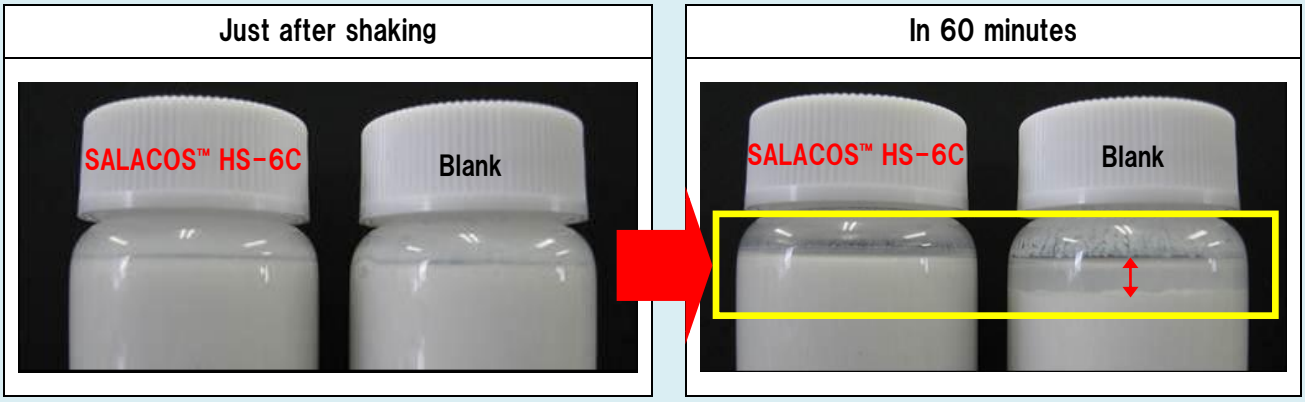


Fig.7 Appearance of Precipitation in Sunscreen (Table3)

<Test Method>

1. Shake sunscreen (Table3) and keep it.
2. Observe the appearance in 60 minutes.

Possible to Rise SPF Value with Improving Pigment Dispersion

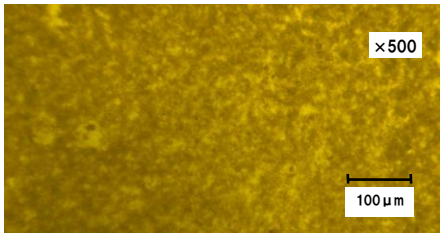
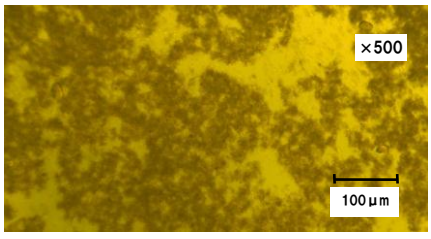
	SALACOS™ HS-6C	Blank
SPF	31	21
Appearance		

Fig.8 Improvement of Dispersion and SPF (n=4) in Sunscreen (Table3)

<Test Method>

SPF

1. Apply defined amount of sunscreen (Table3) on PMMA plate※1 and keep it for 15 minutes.
2. Measure SPF value by SPF analyzer※2

Appearance

1. Apply sunscreen (Table3) on a glass plate and observe its appearance by a microscope (x500).

※1 Helioplate HD6, HelioScreen Labs
※2 UV-1000S, Labsphere Inc.

Table3 Sunscreen

	Ingredient	SALACOS™ HS-6C	Blank
A	SALACOS™ HS-6C	1.00	—
	SALACOS™ 913※3	35.40	36.40
	Cyclopentasiloxane	8.00	8.00
	PEG-10 Dimethicone	1.00	1.00
	Diphenyl Siloxy Phenyl Trimethicone	0.50	0.50
	NOMCORT™ TAB※4	10.00	10.00
	Dispersion of Zinc Oxide※5	8.00	8.00
	Dispersion of Titanium Dioxide※6	6.60	6.60
	TOCOPHEROL 100※7	0.02	0.02
B	Sodium Chloride	2.00	2.00
	Alcohol	5.00	5.00
	Butylene Glycol	5.00	5.00
	Glycerin	2.00	2.00
	Water	15.48	15.48
	Total	100.00	100.00

(Wt/Wt%)

※3 ISOTRIDECYL ISONONANOATE
※4 ETHYLHEXYL METHOXYCINNAMATE
※5 ZINC OXIDE, DIMETHICONE, PHENYLTRIMETHICONE, DIMETHICONE/VINYLDIMETHICONE CROSSPOLYMER, POLYGLYCERYL-2 ISOSTEARATE
※6 TITANIUM DIOXIDE, SILICA, ALUMINUM HYDROXIDE, STEARIC ACID, CYCLOPENTASILOXANE, DIMETHICONE/VINYLDIMETHICONE CROSSPOLYMER, POLYGLYCERYL-2 ISOSTEARATE
※7 TOCOPHEROL

Formula 1 CREAMY FOAMING CLEANSER

	Ingredient	wt/wt%
A	SALACOS™ HS-6C	2.00
	Dipropylene Glycol	5.50
	Sorbitol(70%aq.)	2.00
	PEG-400	12.50
	Sodium Methyl Cocoyl Taurate (30%aq.)	2.00
	Cocamidopropyl Betaine (30%aq)	4.00
	Stearic Acid	18.00
	Lauric Acid	5.00
	Myristic Acid	9.00
	Glyceryl Stearate SE	1.00
B	Disodium EDTA	0.05
	Potassium Hydroxide(50%aq)	11.60
	Water	21.35
C	Glycerin	6.00
	Total	100.00

〈Procedure〉

1. Heat A to 70℃ and dissolve it.
2. Mix 1 uniformly.
3. Heat B to 70℃ and dissolve it.
4. Mix 3 uniformly.
5. Add 4 to 2 slowly while mixing by a disper mixer.
6. Cool 5 to 25℃.
7. Add C to 6 and mix it uniformly.

Formula 2 W/O SUNSCREEN (Shake type)

	Ingredient	wt/wt%
A	SALACOS™ HS-6C	0.50
	SALACOS™ WO-6※1	0.50
	SALACOS™ 816T※2	5.00
	Cyclopentasiloxane	8.00
	PEG-10 Dimethicone	1.00
	Diphenyl Siloxy Phenyl Trimethicone	0.50
	NOMCORT™ TAB※3	10.00
	Dispersion of Zinc Oxide※4	25.00
	Dispersion of Titanium Dioxide※5	20.00
	TOCOPHEROL 100※6	0.02
B	Sodium Chloride	2.00
	Alcohol	5.00
	Butylene Glycol	5.00
	Glycerin	2.00
	Water	15.48
	Total	100.00

〈Procedure〉

1. Mix A uniformly by a homo mixer.
2. Mix B uniformly.
3. Add 2 to 1 while mixing by a homo mixer.
   (Prepare at room temperature.)

※1 DIPENTAERYTHRITYL TRI-POLYHYDROXYSTEARATE
※2 CETYL ETHYLHEXANOATE
※3 ETHYLHEXYL METHOXYCINNAMATE
※4 ZINC OXIDE, DIMETHICONE, PHENYLTRIMETHICONE, DIMETHICONE/VINYLDIMETHICONE CROSSPOLYMER, POLYGLYCERYL-2 ISOSTEARATE
※5 TITANIUM DIOXIDE, SILICA, ALUMINUM HYDROXIDE, STEARIC ACID, CYCLOPENTASILOXANE, DIMETHICONE/VINYLDIMETHICONE CROSSPOLYMER, POLYGLYCERYL-2 ISOSTEARATE
※6 TOCOPHEROL

INCI Name : POLYHYDROXYSTEARIC ACID

CAS No. : 27924-99-8, 58128-22-6

EC No. : 500-140-7

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