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ASGP
Superdispersible
Natural Origin
Treatment



February 2022

Making Pigments Superdispersible

- High dispersibility of pigments is critical for color development and formulation stability
- Natural ingredients have become highly desired in the marketplace
- Natural origin ASGP treatment renders powders **hydrophobic** and **superdispersible**
- Treated pigments require only minimal agitation and energy during grinding phase; they disperse easily in anhydrous systems and facilitate quick and uniform color development
- Gives a creamy feel, true color and aids in pressing powders
- Promotes better wear properties due to treated pigments' adhesion to skin



Combination of BYO-ASGP3, BTD-ASGP3 and BRO-ASGP3 in o/w emulsion base, pigment grind was made under **propeller mixing** only

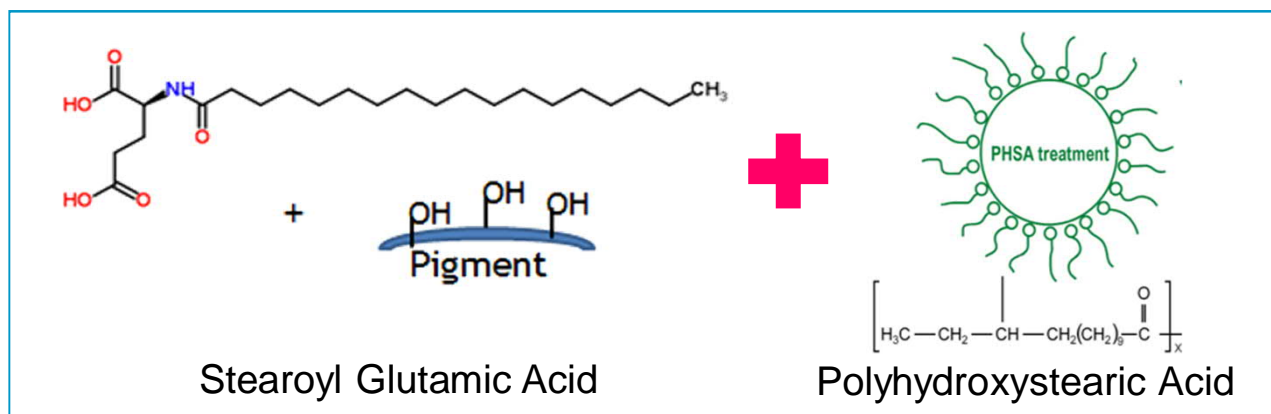
Patent: US 9662280B2 (2017-05-30)

ASGP Treatment



ASGP Treatment contains:

- Stearoyl Glutamic Acid (ASG) - *base coating to provide stable hydrophobicity*
- Polyhydroxystearic Acid (P) - *to improve dispersibility*



INCI Name: *Pigment* (And) *Stearoyl Glutamic Acid*
(And) *Polyhydroxystearic acid*



Kobo's Definition of

Natural Origin

Kobo defines natural origin products as ingredients that are naturally derived which are likely to have undergone chemical or mechanical processing to make them commercially viable ingredients.

We offer a wide range of ingredients, such as **Surface Treatments, Pigmentary Dispersions, Sunscreen Technologies, Microspheres** and **Specialties**, of natural origin, mineral or plant-based in particular.

We have chosen to certify many of them with **ECOCERT/COSMOS**.

Natural Index (NI) / Natural Origin Index (NOI) following the **ISO 16128** standard is available upon request.

ASGP-Treated Pigments

Natural Origin & Superdispersible

Not all products are available in all regions. Please contact your Kobo sales representative for more information.

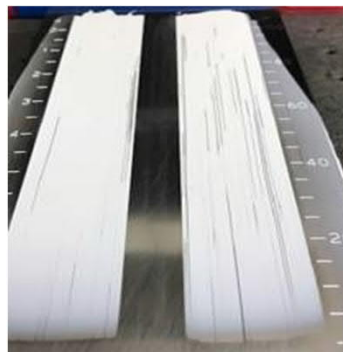
Comparison of Natural Origin Surface Treatments Pigmentary TiO_2

Hegman Gauge
Drawdown

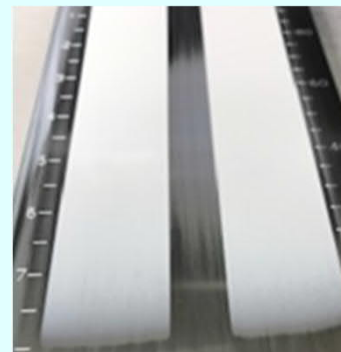
BTD-NJE2
*Jojoba Ester
Treatment*



BTD-ASG2
*Stearoyl Glutamic Acid
Treatment*

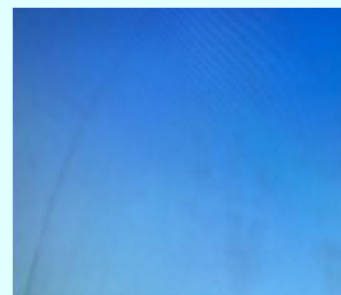
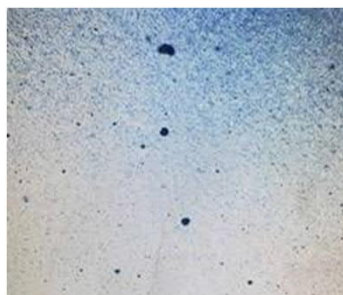


BTD-ASGP3



Hegman Units > 7

Optical Microscopy



60% pigment in
Belsil PDM 5
2000rpm @ 20sec
x 2, Speedmixer

Evaluation of ASGP in Color Formulas

Objective

- Compare differences between ASG and ASGP treatments in a pressed powder, Castor Oil dispersion and lipstick formulation.
- Color evaluations will also be performed in a drawdown with CIE Lab color equipment on the formulations.

Pressed Powder - Formula

Part	Ingredients	INCI Names	A	B
1	SERICITE GMS-4C	Mica	40.00	
	TALC AJM	Talc	40.00	
	BTD-ASGP3	Titanium Dioxide (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	11.90	-
	BWRO-ASGP3	Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	1.00	-
	BWYO-ASGP3	Iron Oxides (CI 77492) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	0.85	-
	BWBO-ASGP	Iron Oxides (CI 77499) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	0.25	-
	BTD-ASG2	Titanium Dioxide (And) Stearoyl Glutamic Acid	-	11.90
	BRO-ASG3	Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid	-	1.00
	BYO-ASG3	Iron Oxides (CI 77492) (And) Stearoyl Glutamic Acid	-	0.85
	BBO-ASG3	Iron Oxides (CI 77499) (And) Stearoyl Glutamic Acid	-	0.25
2	Olive Oil (Pure)	Olea europaea (Olive Fruit) oil (pure)	6.00	

Pressed Powders - Color Evaluation

	CIE	ASGP	ASG
Initial	L	73.72	75.15
	a	13.78	13.19
	b	18.72	16.48
	c	23.25	21.11
	h	53.60	51.32

Legend:

L = Lightness (toward 0 = black, 100 = white)

a = +red/-green value

b = -blue/+yellow value

c = (+brighter, -duller)

h = similarity in color combination

ASGP

ASG



Pressed powder with ASGP treated pigments is much darker, more saturated and more yellow

Pressed Powders - Drop Test

ASGP

ASG



4 drops

2 drops

Both powders were pressed at 600psi. There were no visible differences in dusting in either case. ASGP was creamier, had better adherence to the skin verses ASG, which was less even in coverage and adherence.

Dispersion - Formula

Ingredients	INCI Names	A	B
Castor Oil	Mica	60.00	
BWRO-ASGP3	Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	40.00	-
BRO-ASG3	Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid	-	40.00

*Dispersions were propeller mixed for
30 minutes at 600 rpm*

Dispersions - Color Evaluation

	CIE	ASGP	ASG
Initial	L	79.83	80.30
	a	9.36	9.07
	b	15.82	15.80
	c	17.47	17.32
	h	64.89	65.82

Legend:

L = Lightness (toward 0 = black, 100 = white)

a = +red/-green value

b = -blue/+yellow value

c = (+brighter, -duller)

h = similarity in color combination



ASGP is lighter. more saturated and yellow

Lipstick - Formula

Part	Ingredients	INCI Names	A	B
1	ASGP Dispersion	Ricinus Communis (Castor) Seed Oil (And) Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	40.00	-
	ASG Dispersion	Ricinus Communis (Castor) Seed Oil (And) Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid	-	40.00
2	Protachem™ CTG	Caprylic/Capric Triglyceride	38.50	
	Carnauba Wax SP 63P	Copernicia Cerifera (Carnauba) Wax	9.00	
	Beeswax White Sp 422P	Beeswax	6.50	
	Cegesoft® SBE	Butyrospermum Parkii (Shea) Butter	5.00	
	Lexgard® Natural	Glyceryl Caprylate (and) Glyceryl Undecylenate	1.00	

Dispersions from previous study were used
and lipsticks were poured into molds at 80°C

Lipsticks - Color Evaluation

	CIE	ASGP	ASG
Initial	L	40.48	39.78
	a	31.01	30.94
	b	24.72	23.44
	c	39.66	38.81
	h	38.57	37.14

Legend:

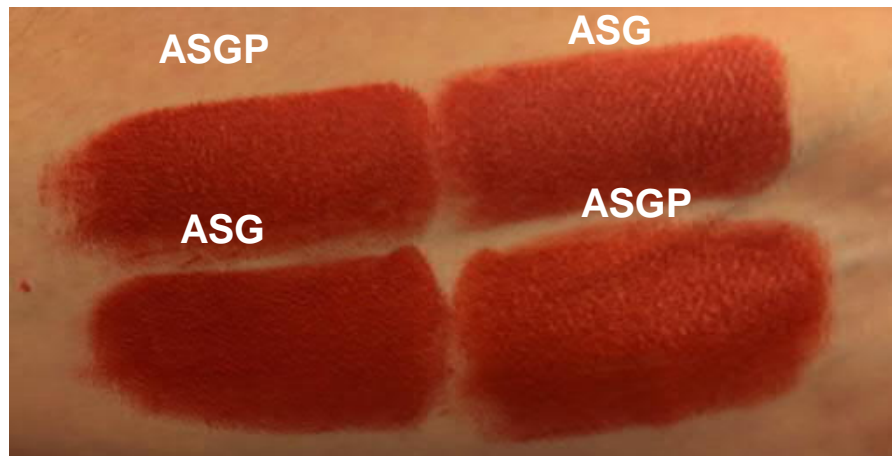
L = Lightness (toward 0 = black, 100 = white)

a = +red/-green value

b = -blue/+yellow value

c = (+brighter, -duller)

h = similarity in color combination



ASGP revealed a lipstick with creamy and soft texture and good skin adherence. ASG applied slightly draggy but with good application. ASGP visually appeared brighter in color

ZNO-750-ASGP6

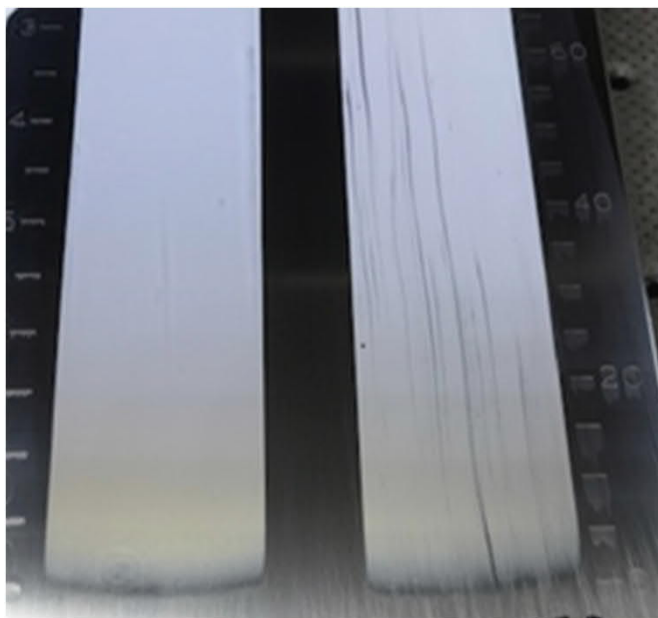
Natural Origin, Superdispersible UV Filter

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Dispersibility Comparison in Esters

Hegman Gauge

ZnO-750-ASGP6 ZnO-750-ASG5



Hegman Units > 7

*60% pigment in Dermol 25B
2000rpm @ 20sec x 2, Speedmixer)*

Drawdown

GCP55MZ8SG* ZnO-750-ASG5
ZnO-750-ASGP6



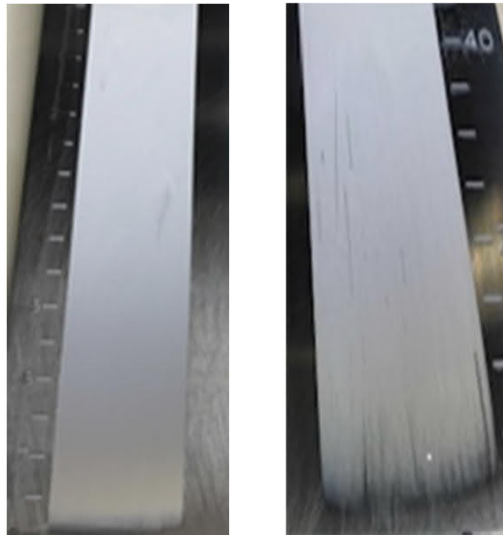
Dilute to 25% in Dermol 25B

**GCP55MZ8SG: dispersion of an ASG-treated
ZnO in Caprylic/Capric Triglyceride*

Dispersibility Comparison in Silicones

ZnO-750-ASGP6 ZnO-750-ASG5

in DM 5 cSt



Hegman Units > 7

< 5

ZnO-750-ASGP6

in D5



> 7

in DM 2cSt



> 7

60% pigment ; 2000rpm @ 20sec x 2, Speedmixer)

Super Dispersibility of ASGP-Treated ZnO

ZNO-750-ASGP6

25% slurry in C12-15 Alkyl Benzoate

A - Mixed by hand
for 2 min.



B - Mixed on SpeedMixer
@ 2000 rpm for 20 sec.



Super Dispersibility of ASGP-Treated ZnO

Further dilution to 0.5% pigment loading did not cause agglomeration

A - Mixed by hand

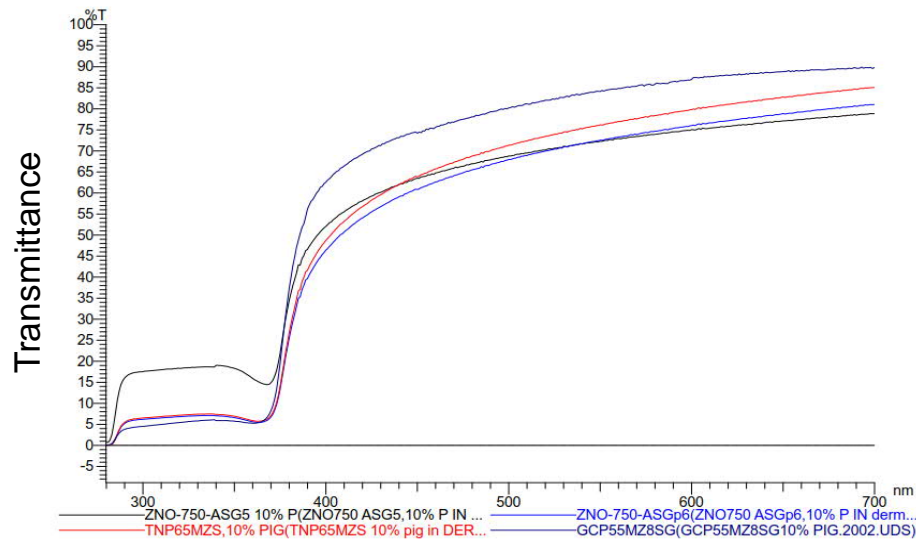


B - Mixed on SpeedMixer



UV Attenuation Comparison

Report Date: 14:53:20, 03/06/2020









- (1) GCP55MZ8SG
- (2) TNP65MZS
- (3) ZNO-750-ASGP6 (SS239-XP)
- (4) ZNO-750-ASG5 (SS215-XP)

Procedure:






1. Powder is added to COSMOL™ 222 to a ZnO% of 10%.
2. The mixture was mixed in Speedmixer 20 s x 2000 rpm


ZnO-750-ASGP6, when dispersed at typical use level without milling, provides almost the same degree of UV attenuation as the milled dispersions.

Available ASGP-Treated Pigments & Powders (I)

BWRO-ASGP3		Iron Oxides (CI 77491) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Red Iron Oxide
BWYO-ASGP3		Iron Oxides (CI 77492) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Yellow Iron Oxide
BWBO-ASGP3		Iron Oxides (CI 77499) (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Black Iron Oxide
BGCO-ASGP5		Chromium Oxide Greens (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Green Chromium Oxide
BMV-ASGP5		Manganese Violet(And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Manganese Violet
BEUB-ASGP6		Ultramarines (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Ultramarine Blue
BTD-ASGP3		Titanium Dioxide (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Pigmentary TiO ₂
TiO2 CR-50-ASGP3		Titanium Dioxide (And) Alumina (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Pigmentary TiO ₂
BLUE 1AL-ASGP7		Blue 1 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	FD&C Blue No. 1 Al Lake
RED 6BA C-ASGP7		Red 6 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	D&C Red No. 6 Ba Lake
RED 7CA D-ASGP7		Red 7 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	D&C Red No. 7 Ca Lake

Available ASGP-Treated Pigments & Powders (II)

RED 22AL-ASGP7	Red 22 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	D&C Red No. 22 AI Lake
RED 28AL C-ASGP7	Red 28 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	D&C Red No. 28 AI Lake
RED 33AL-ASGP7	Red 33 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	D&C Red No. 33 AI Lake
YELLOW 5AL-ASGP7	Yellow 5 Lake (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	FD&C Yellow No. 5 AI Lake
GMS-ASGP4	 Mica (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Sericite
MICA S-ASGP3	 Mica (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	Mica
A15-TiO2-SA-ASGP12	 Titanium Dioxide (And) Hydrated Silica (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid (And) Aluminum Hydroxide	UV-Attenuation TiO ₂
ZNO-660-ASGP7	 Zinc Oxide (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	UV-Attenuation ZnO
ZnO-750-ASGP6	 Zinc Oxide (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid	UV-Attenuation ZnO

 *Natural Origin – NOI =1 (following ISO 16128 Standard)*

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