

Hybrid TREATMENT - TTB

Silicone treated pigments are exceptionally hydrophobic and readily dispersed in silicone fluids. Due to the lack of lipophilic properties, materials treated with solely silicone disperse poorly in esters and oils. Conversely, the titanate treatment is known for its lipophilic properties but is simultaneously not as hydrophobic. To encompass the attributes of both coatings, one single treatment has been developed to minimize the individual component drawbacks. Kobo offers a Hybrid Treatment (TTB) where titanate is used to react the silicone compound branched dimethicone to the surface of pigments or powders. This unique chemistry allows for a broader range of materials available to be effectively coated with the TTB treatment than with other treatments. TTB also allows for improved particle size control.

Superdispersible & Multimedia:

The inherent nature of this Hybrid Treatment is to impart hydrophobic and lipophilic properties on a substrate surface. This makes treated powders super-dispersible in esters and hydrocarbons as well as in silicones. When compared to other treatments in various media, the TTB treatment exhibits the highest degree of dispersibility (figure 1).

pH stability:

The TTB treatment is very stable over a wide range of pH (between 3 and 9).

Skin Affinity:

Due to the presence of fatty groups, TTB-treated pigments and powders have a better affinity for the skin than silicone-treated equivalents.

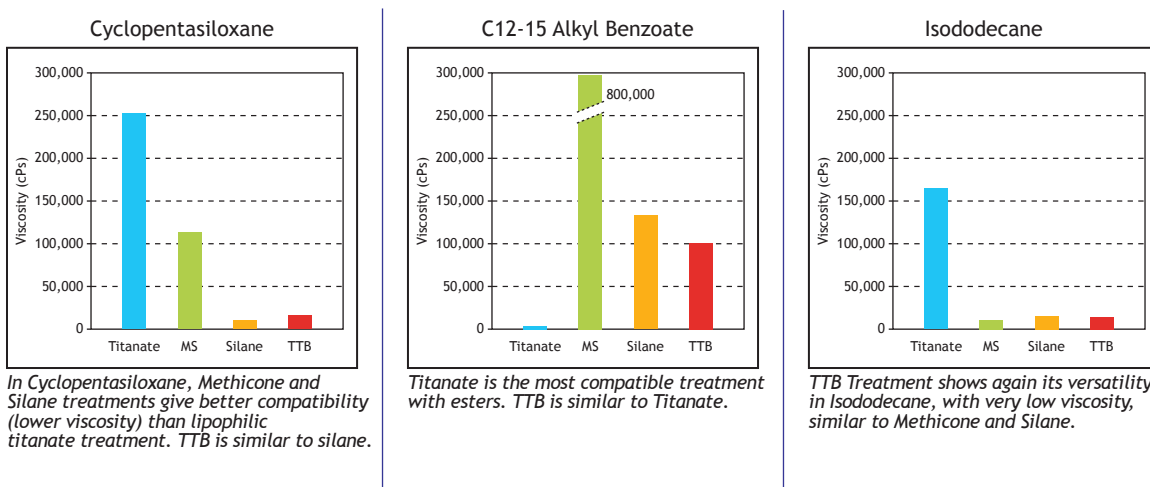
Applications:

TTB treated powders exhibit water resistance and can be used in esters, oils, silicones and hydrocarbons. Notably powders altered with this surface treatment wear up to 12 hours in a lipstick and up to 24 hours in powders, W/O emulsions, and an anhydrous blush. These treated materials are excellent for producing finished formulations of foundations and concealers. Additionally the TTB treatment is excellent in pressed/loose powder, and anhydrous type applications.

TTB in Cyclopentasiloxane dispersions is easily dispersed in a W/Si system resulting in full color development. The color is not only fully dispersed but also remains stable in a silicone based emulsion.

Patent Pending #W0/2005/099651
Hybrid Coated Cosmetic Powders and
Methods of Making and Using Same

Figure 1: Comparison of the viscosity of 75% anatase TiO₂ dispersions



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Hybrid Treatment - TTB

Trade Name	INCI Name	Product Type
BGBO-TTB2	Iron Oxides (C.I. 77499) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Black Iron Oxide
BGRO-TTB2	Iron Oxides (C.I. 77491) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Red Iron Oxide
BGYO-TTB2	Iron Oxides (C.I. 77492) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Yellow Iron Oxide
BGCO-TTB2	Chromium Oxide Greens (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Green Chromium Oxide
BLUE 1AL S-TTB6	Blue 1 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	FD&C Blue No. 1 Aluminum Lake
RBTD-TTB2	Titanium Dioxide (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Pigmentary Titanium Dioxide
RED 6BA S-TTB2	Red 6 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	D&C Red No. 6 Barium Lake
RED 7CA C-TTB2	Red 7 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	D&C Red No. 7 Calcium Lake
RED 30AL-TTB2	Red 30 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	D&C Red No. 30 Aluminum Lake
YELLOW 5AL S-TTB2	Yellow 5 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	FD&C Yellow No. 5 Aluminum Lake
YELLOW 6AL C-TTB2	Yellow 6 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	FD&C Yellow No. 6 Aluminum Lake
New BFF-TTB6	Ferric Ammonium Ferrocyanide (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Blue Ferric Ammonium Ferrocyanide
MICA S-TTB2	Mica (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Mica
GMS-TTB4	Mica (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Sericite
TTO-TTB7	Titanium Dioxide (And) Isopropyl Titanium Triisostearate (And) Alumina (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Attenuation Grade Titanium Dioxide
BTD-TTB2	Titanium Dioxide (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone	Pigmentary Titanium Dioxide
TALC N-TTB2	Talc (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Isopropyl Titanium Triisostearate	Talc

Cyclopentasiloxane Dispersions

Trade Name	INCI Name	Product Type
FAS50YTB	Iron Oxides (C.I. 77492) (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Distearidimonium Hectorite (And) Tocopheryl Acetate	Yellow Iron Oxide
FAS65RTB	Iron Oxides (C.I. 77491) (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Distearidimonium Hectorite (And) Tocopheryl Acetate	Red Iron Oxide
FAS65UTB	Titanium Dioxide (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Distearidimonium Hectorite (And) Tocopheryl Acetate	White Titanium Dioxide
FAS70BTB	Iron Oxides (C.I. 77499) (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Distearidimonium Hectorite (And) Tocopheryl Acetate	Black Iron Oxide

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Hybrid Treatment - TTB

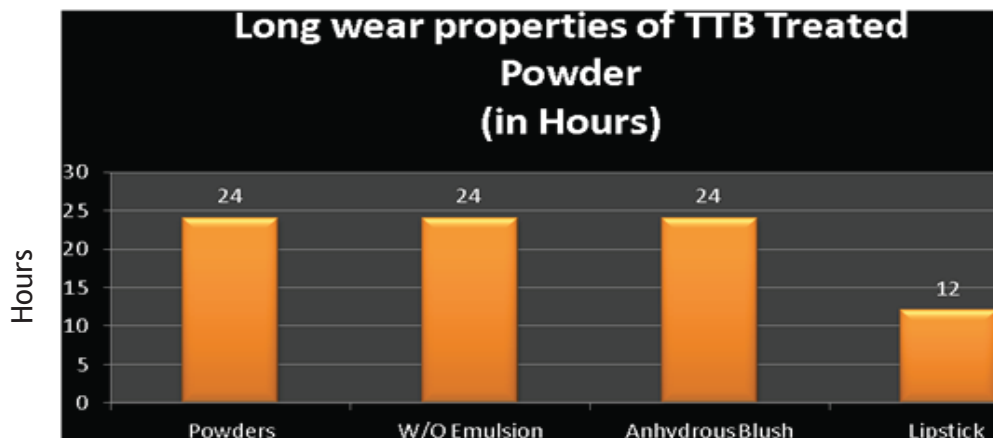


Figure 2: Screening test showing long wear properties of color cosmetics made with TTB-Treated products

Wear Test (Figure 2)

Objective: To determine how long a product is wearing on the skin.

Method: Apply Test product as usual. Using slightly water dampened Q-tip, swab product area at 8, 12, 16, and 24 hours. If there is product transfer on the Q-tip, continue on to the next hour mark for testing.

Note: If the product transfers to the Q-tip from the skin it is considered to be in an active state of “wearing” on the skin.

Lipstick with TTB Treatment

KLP-015E

Part 1

- Dermol DID - Alzo International Inc.: *Diisopropyl Dimer Dilinoleate* 16.41%
- COSMOL™ 168ARV - Ikeda Corporation: *Dipentaerythrityl Hexahydroxystearate/Hexastearate/Hexarosinate* 12.25%
- White Petrolatum USP - Ultra Chemical, Inc.: *Petrolatum* 9.00%
- COSMOL™ 222 - Ikeda Corporation: *Diisostearyl Malate* 8.06%
- Ozokerite Wax White SP 1020 - Strahl & Pitsch: *Ozokerite* 5.67%
- Performalene PL - New Phase: *Polyethylene* 4.72%
- SALACOS® HS - Ikeda Corporation: *Cholesteryl Hydroxystearate* 0.60%

Part 2

- IN60S4 - Kobo Products: *Titanium Dioxide (And) Isononyl Isononanoate (And) Stearic Acid (And) Aluminum Hydroxide* 10.00%

Part 3

- Dermol DID - Alzo International Inc.: *Diisopropyl Dimer Dilinoleate* 8.00%
- RED 6BA S-TTB2 - Kobo Products: *Red 6 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone* 2.10%
- YELLOW 5AL S-TTB2 - Kobo Products: *Yellow 5 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone* 1.45%
- RED 7CA C-TTB2 - Kobo Products: *Red 7 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone* 1.44%
- BLACK NF - Kobo Products: *Iron Oxides (C.I. 77499)* 0.45%

Part 4

- Dermol DID - Alzo International Inc.: *Diisopropyl Dimer Dilinoleate* 8.00%
- KTZ® INTERVAL BLUE - Kobo Products: *Mica (And) Titanium Dioxide* 3.00%
- MICA S-TTB2 - Kobo Products: *Mica (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone* 2.00%
- Methyl Paraben NF - International Sourcing: *Methylparaben* 0.20%
- Propyl Paraben NF - International Sourcing: *Propylparaben* 0.15%

Part 5

- MSS-500/3H - Kobo Products: *Silica* 5.00%
- Vanilla #281-794 - American Flavors & Fragrance: *Fragrance* 1.50%

Manufacturing Procedure

1. Add Part 1 ingredients into main tank and begin mixing with propeller agitation.
2. Heat to 90°C and hold for 30 minutes.
3. Homogenize Parts 2 and 3 until the pigments are completely dispersed.
4. Add pigments to main tank and mix for 15 minutes maintaining batch temperature between 86-88°C.
5. Using propeller agitation, combine the Pearls with the Dermol DID.
6. Add to main tank and mix for 15 minutes maintaining batch temperature between 86-88°C. Add the remaining ingredients in Part 4 to main batch.
7. Adjust shade accordingly to match standard.
8. QS batch to 100% after all adjustments using DID.
9. Once shade has been adjusted, continue propeller agitation and cool batch temperature to 80°C.
10. Combine Part 5 and add to main tank.
11. Pour bulk evenly in lipstick molds and let set up (approximately 5 minutes depending on mold/cavity size). Fill cavity to top rim to prevent coring.
12. Once bulk is set, cool to at least 5°C by force chilling on a chill plate or in a freezer.
13. Remove bullets from cavity and insert into appropriate lipstick tubes.

Description

This lipstick features Kobo's TTB Surface Treatment. The use of TTB treated pigments and mica allows for optimal glide while improving wear. This treatment is a good formulation choice for lip products as it exhibits a high degree of dispersibility in the formula and improves skin affinity and wear. BLACK NF is a fine Black Iron Oxide that adds depth to the lipstick color. KTZ® INTERVAL BLUE provides an iridescent shimmering effect on the lips. Silica Microsphere, MSS-500/3H, enhances the glide-on application and helps to maintain the strength of the fragrance. IN60S4 is Kobo's Titanium Dioxide Dispersion for SPF.

Active Ingredients

- Titanium Dioxide 4.92%

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Hybrid Treatment - TTB

Foundation with TTB-Treated Pigments

KLF-056A

Part 1

● Permethyl® 101A - Presperse: <i>Isohexadecane</i>	18.18%
● Finsolv® TN - Finetex: <i>C12-15 Alkyl Benzoate</i>	15.00%
● BTD-TTB2 - Kobo Products: <i>Titanium Dioxide (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	7.00%
● KF-6040 - Shin Etsu: <i>Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone</i>	4.40%
● BGYO-TTB2 - Kobo Products: <i>Iron Oxides (C.I. 77492) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	2.20%
● KF-6017 - Shin Etsu: <i>PEG-10 Dimethicone</i>	2.00%
● Thixcin® R - Elementis Specialties: <i>Trihydroxystearin</i>	1.20%
● BGRO-TTB2 - Kobo Products: <i>Iron Oxides (C.I. 77491) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	0.70%
● BGBO-TTB2 - Kobo Products: <i>Iron Oxides (C.I. 77499) (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Isopropyl Titanium Triisostearate</i>	0.25%
● Vitamin E Acetate Oil USP, FCC - BASF: <i>Tocopheryl Acetate</i>	0.12%

Part 2

● <i>Deionized Water</i>	39.30%
● Butylene Glycol - Ruger Chemical Co., Inc.: <i>Butylene Glycol</i>	3.50%
● Glycerin U.S.P. Natural 96% - Univar USA Inc.: <i>Glycerin</i>	1.25%
● Germaben® II - ISP: <i>Propylene Glycol (And) Diazolidinyl Urea (And) Methylparaben (And) Propylparaben</i>	1.00%

● Sodium Chloride - Morton Salt: <i>Sodium Chloride</i>	0.90%
● Jeecide CAP-5 - Jeen International: <i>Phenoxyethanol (And) Caprylyl Glycol (And) Potassium Sorbate (And) Water (And) Hexylene Glycol</i>	0.50%
● Tween™ 20 - Croda: <i>Polysorbate 20</i>	0.50%

Part 3

● MSS-500W - Kobo Products: <i>Silica</i>	2.00%
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Manufacturing Procedure

1. Combine Thixcin® R with Permethyl® 101A and heat to 55-60°C. Homogenize for 20 minutes while maintaining the temperature at 55-60°C to allow full activation. Cool to below 35°C with low to medium stirring. Add the remaining ingredients in Part 1 and homogenize until the color is fully developed.
2. Combine Part 2 ingredients and propeller mix.
3. Slowly add Part 2 to Part 1 while homogenizing.
4. Slowly add Part 3 while homogenizing with paddle mixing.

Description

This W/O liquid foundation features Kobo's TTB Treated Pigments (Isopropyl Titanium Triisostearate and Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone). The TTB-Treated Pigments help to prevent color change during the day, and improve the smoothness of application. Microsphere, MSS-500W, helps impart an elegant feel in application and a soft focus effect.

Concealer with TTB-Treated Pigments

KCC-001D

Part 1

● SF1202 - Momentive: <i>Cyclopentasiloxane</i>	5.04%
● CSF-3100@20cSt - NuSil/Kobo Products: <i>Dimethicone</i>	3.50%
● Crill™ 6 - Croda: <i>Sorbitan Isostearate</i>	1.00%
● Liposorb® O - Vantage: <i>Sorbitan Oleate</i>	1.00%
● SF1528 - Momentive: <i>Cyclopentasiloxane (And) PEG/PPG-20/15 Dimethicone</i>	1.00%
● Propyl Paraben NF - International Sourcing: <i>Propylparaben</i>	0.10%

Part 2

● SF1528 - Momentive: <i>Cyclopentasiloxane (And) PEG/PPG-20/15 Dimethicone</i>	22.50%
● BTD-TTB2 - Kobo Products: <i>Titanium Dioxide (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	20.00%
● GMS-TTB4 - Kobo Products: <i>Mica (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	10.00%
● BGYO-TTB2 - Kobo Products: <i>Iron Oxides (C.I. 77492) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	1.05%
● SP-10 - Toray/Kobo Products: <i>Nylon-12</i>	0.50%
● BGRO-TTB2 - Kobo Products: <i>Iron Oxides (C.I. 77491) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	0.42%
● BGBO-TTB2 - Kobo Products: <i>Iron Oxides (C.I. 77499) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone</i>	0.12%

Part 3

● Propylene Glycol - Symrise: <i>Propylene Glycol</i>	5.00%
● Kelrol® CG - CP Kelco: <i>Xanthan Gum</i>	0.10%
● Methyl Paraben NF - International Sourcing: <i>Methylparaben</i>	0.10%

Part 4

● <i>Deionized Water</i>	16.47%
● Sodium Chloride - Morton Salt: <i>Sodium Chloride</i>	1.25%

Part 5

● Candelilla Wax - Frank B. Ross: <i>Candelilla Wax</i>	1.00%
● White Beeswax SP 422P- Strahl & Pitsch, Inc.: <i>Beeswax</i>	0.85%

Part 6

● CXG-1101 - NuSil/Kobo Products: <i>Cyclopentasiloxane (And) Dimethicone/Vinyl Dimethicone Crosspolymer</i>	7.50%
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Part 7

● KTZ® INTERVAL RED - Kobo Products: <i>Mica (And) Titanium Dioxide</i>	1.50%
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Manufacturing Procedure

Use explosion-proof mixers and equipment during batching process

1. Add Part 1 raw materials and mix with a homogenizer. Combine Part 2 ingredients, add to Part 1, and homogenize for 30 minutes.
2. Combine the Methylparaben and Propylene Glycol. Stir until dissolved. Slurry in the Xanthan Gum.
3. Combine the water and Sodium Chloride to form the salt solution.
4. Combine Parts 3 and 4 to form the aqueous part.
5. Add the aqueous Parts 3 and 4 very slowly to the Silicone Pigment Parts 1 and 2 using the homogenizer. Add Part 5 to Parts 1, 2, 3 and 4 at 75-80°C. Cool the batch to 60°C.
6. At 60°C add Part 6 to Parts 1, 2, 3, 4 and 5. Continue homogenizing to 25°C.
7. Add Part 7 slowly - hand side sweep.

Description

This concealer provides high coverage without 'chalkiness', achieved by using Kobo's Hybrid TTB treatment, GMS-TTB4 and Pigments. KTZ® INTERVAL RED neutralizes dark circles (Red cuts Blue) underneath the eye area. CXG-1101 promotes a creamy, gel texture to the product and SP-10 gives a creamy slip during application. CSF-3100@20cSt provides even spread on application.

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