Titanate & Dimethicone
Hybrid Treatment

INCI Name: Isopropyl Titanium Triisostearate (And)
Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone

Code: 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.

Patent US #10064792B2; Hybrid Coated Cosmetic Powders and Methods of Making and Using Same

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.

Figure 1. Comparison of the viscosity of surface treated anatase TiO₂ dispersed in different media (75% solid content)

In Cyclopentasiloxane, TTB and Methicone treatments give better compatibility (lower viscosity) than the lipophilic titanate treatment.

TTB Treatment shows again its versatility in Isododecane, with very low viscosity, similar to that of Methicone.

While Titanate is the most compatible treatment with esters, TTB shows a very low viscosity compared with Methicone.

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Wear Test
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.

Treated Pigments and Powders

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>INCI Name</th>
<th>Product Type</th>
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</thead>
<tbody>
<tr>
<td>BGRO-TTB2</td>
<td>Iron Oxides (CI 77491) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylhexyl Polymethylsiloxyethyl Dimethicone</td>
<td>Red Iron Oxide</td>
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<tr>
<td>BGYO-TTB2</td>
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### Pigmentary Dispersions

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<td>Iron Oxides (CI 77491) (And) Cyclopentasiloxane (And) PEG-10 Dimethicone (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone (And) Distearidimonium Hectorite (And) Propylene Carbonate</td>
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### Cyclopentasiloxane Dispersions

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<td>Titanium Dioxide (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone (And) Distearidimonium Hectorite (And) Tocopheryl Acetate</td>
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### Non-D5 Dispersions

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<td>FADM55RTB</td>
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<td>FADM55YTB</td>
<td>Iron Oxides (CI 77492) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone (And) Tocopheryl Acetate</td>
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<td>Iron Oxides (CI 77499) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone (And) Tocopheryl Acetate</td>
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<tr>
<td>FADM65UTB</td>
<td>Titanium Dioxide (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone (And) Tocopheryl Acetate</td>
<td>Pigmentary Titanium Dioxide</td>
</tr>
</tbody>
</table>

**KPP-067A**

### Pressed Powder with TTB Treatment

**Part 1**
- **GMS-TTB4** - Kobo Products: Mica (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone
- **BTD-TTB2** - Kobo Products: Titanium Dioxide (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone
- **BN18-I2** - Kobo Products: Boron Nitride (And) Isopropyl Titanium Tristearate
- **ZNCTBB** - Kobo Products: Zinc Myristate
- **BGYO-TTB2** - Kobo Products: Iron Oxides (CI 77492) (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone
- **BGR0-TTB2** - Kobo Products: Iron Oxides (CI 77491) (And) Isopropyl Titanium Tristearate (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone
- **BGBO-TTB2** - Kobo Products: Iron Oxides (CI 77499) (And) Triethoxysilylated Polydimethylsiloxymethyl Dimethicone (And) Isopropyl Titanium Tristearate
- **Methyl Paraben NF** - International Sourcing: Methylparaben
- **Propyl Paraben NF** - International Sourcing: Propylparaben

**Part 2**
- **Lexol® PG-865** - Inolex Chemical Company: Propylene Glycol Dicaprylate/Dicaprate
- **Xiameter® PMX-200 Silicone Fluid 20CS** - Dow Coming: Dimethicone
- **Xiameter® PMX-200 Silicone Fluid 350 CS** - Dow Coming: Dimethicone
- **SS4267** - Momentive: Dimethicone (And) Trimethylsiloxysilicate

**Manufacturing Procedure**
1. Combine Part 1 in blender. Blend until color is fully developed.
2. Combine Part 2 and mix well.
3. Add Part 2 to Part 1 and blend well.
4. Press at 500 psi.

**Description**
This pressed powder features Kobo’s TTB-Treated Pigments to show how they enhance formula wear. This treatment is both hydrophobic and lipophilic. Boron Nitride, BN18-I2, enhances the formula with increased slip and creamy feel. It imparts superior softness and tactility, superb spreadability, excellent adherence, long lasting effect and good coverage. MST-203 gives slip and a great creamy feel. ZINC MYRISTATE also contributes to great feel, adherence on the skin, and acts as part of the formula’s dry binder system.

**www.koboproducts.com**
**KLF-245-EU**

**Long Wear Liquid Foundation**

**Part 1**
- Deionized Water - Water 30.20%
- KOBOGUARD® 50AMP - Kobo Products: Acylates/Ethylhexyl Acrylate Copolymer (And) Water (And) Aminomethyl Propanol 5.00%
- Glycerin - Mapric: Glycerin 3.00%
- Sodium Chloride - Fisher: Sodium Chloride 1.00%
- Tego® SML 20 - Evonik: Polysorbate 20 0.80%

**Part 2**
- FADM65UTB - Kobo Products: Titanium Dioxide (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone (And) Tocopheryl Acetate 3.00%
- Bentone Gel® V5 5 PCV - Elementis: Cyclopentasiloxane (And) Disteardimonium Hectorite (And) Propylene Carbonate 3.00%
- Abil® EM 90 - Evonik: Cetyl PEG/PPG-10/1 Dimethicone 2.50%
- KOBOGUARD® 5400 IDD - Kobo Products: Hydrogenated Polycyclopentadiene (And) Isododecane 2.00%
- MSS-500/3H - Kobo Products: Silica 1.50%
- Isolan® GPS - Evonik: Polyglyceryl-4 Diisostearate/Polyhydroxystearate/Sebacate 1.00%

**Part 3**
- Symdrol® 68 - Symrise: 1,2-Hexanediol (and) Caprylyl Glycol 1.00%
- FADM55RTB - Kobo Products: Iron Oxides (CI 77491) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone (And) Tocopheryl Acetate 0.70%
- FADM60BTB - Kobo Products: Iron Oxides (CI 77499) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone (And) Tocopheryl Acetate 0.30%

**Manufacturing Procedure**
1. Add Part 2 to main vessel and mix until pigments are fully dispersed.
2. Pre-mix Part 1, adding KOBOGUARD® 50AMP last after all other ingredients are homogeneously mixed. Adjust pH to 7 using citric acid or NaOH solutions (10%).
3. Add Part 1 slowly to Part 2 while mixing.

**Description**
This long-wear liquid foundation combines film formers for both water and oil phases that will improve transfer and water resistance: KOBOGUARD® 50AMP (for water phase) and KOBOGUARD® 5400 IDD (for oil phase). FADM pigmentary dispersions offer full color development and ease the manufacturing process allowing high pigment loading in formulations. CPF-3300@10cSt is a low viscosity phenyl trimethicone that improves spreadability with a light weight feel.

**KLP-101A**

**Lipstick Emulsion with TTB**

**Part 1**
- Xiameter® PMX-200 Silicone Fluid 1000CS - Dow Corning: Dimethicone 8.08%
- RED 7CA C-TTB2 - Kobo Products: Red 7 Lake (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone 8.06%
- Xiameter® PMX-200 Silicone Fluid 50CS - Dow Corning: Dimethicone 6.18%
- RED 68A S-TTB2 - Kobo Products: Red 6 Lake (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone 5.67%
- YELLOW 5AL S-TTB2 - Kobo Products: Yellow 5 Lake (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone 0.47%
- BLUE 1AL S-TTB6 - Kobo Products: Blue 1 Lake (And) Isopropyl Titanium Trisostearate (And) Triethoxysilylethyl Polydimethylsiloxylsiylethyl Dimethicone 0.04%

**Part 2**
- SF1202 - Momentive: Cyclopentasiloxane 16.20%
- Parsol® MCM - DSM Nutricional Products: Ethylhexyl Methoxycinnamate 7.50%
- SF1528 - Momentive: Cyclopentasiloxane (And) PEG/PPG-20/15 Dimethicone 5.00%
- SunBoost ATB - Kobo Products: Argania Spinosa Kernel Oil (And) Tocopheryl Acetate (And) Bisabolol 5.00%
- SS4230 - Momentive: Cyclopentasiloxane (And) Trimethylsiloxyliciclate 2.50%
- SF1555 - Momentive: Bis-Phenylpropyl Dimethicone 1.00%
- SFE839 - Momentive: Cyclopentasiloxane (And) Dimethicone/ Vinyl Dimethicone Crosspolymer 0.50%

**Part 3**
- Deionized Water - Water 25.10%
- Ethyl Alcohol E1028 - VWR Scientific Products: Ethyl Alcohol 5.00%
- Glycerin U.S.P. Natural 96% - Cognis: Glycerin 1.20%
- Butylene Glycol - Ruger Chemical: Butylene Glycol 1.00%
- Paragon® MEPB - McIntyre Group, Ltd.: Phenoxethanol (And) Methyl Paraben (And) Ethyl Paraben (And) Propyl Paraben (And) Butyl Paraben 0.60%
- Sodium Chloride - Morton Salt: Sodium Chloride 0.60%
- Liposorb® L-20 - Vantage: Polysorbate 20 0.30%

**Manufacturing Procedure**
1. Premix the TTB pigments and Dimethicone in Part 1. Mix until uniform with homogenization.

**Note:** Keep batch in cool water bath while homogenizing due to over heating.

**Description**
This TTB Lipstick emulsion glides onto lips effortlessly with lush, vivid color. Kobo’s TTB-Treated Organic Pigments show their ease of use in this formula. SunBoost ATB is a proprietary blend of antioxidant, anti-irritant, and anti-inflammatory agents used in this formula for moisturizing effects.

**Active Ingredient**
Ethylhexyl Methoxycinnamate 7.50%