

Titanate & Dimethicone Hybrid Treatment



INCI Name: Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl 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).

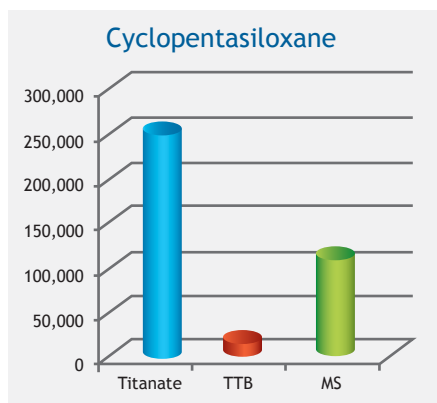
Skin Affinity:

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

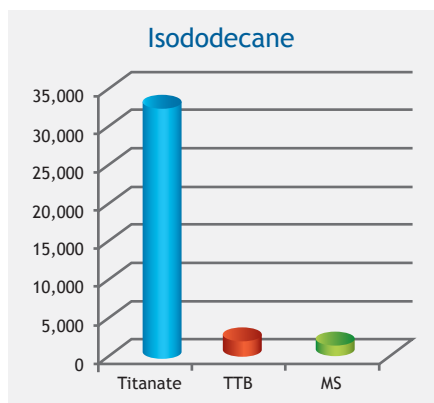
Applications:

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.

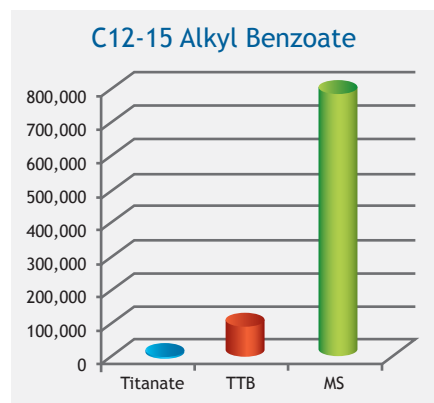
Figure 1. Comparison of the viscosity of surface treated anatase TiO₂ dispersed in different media (75% solid content)



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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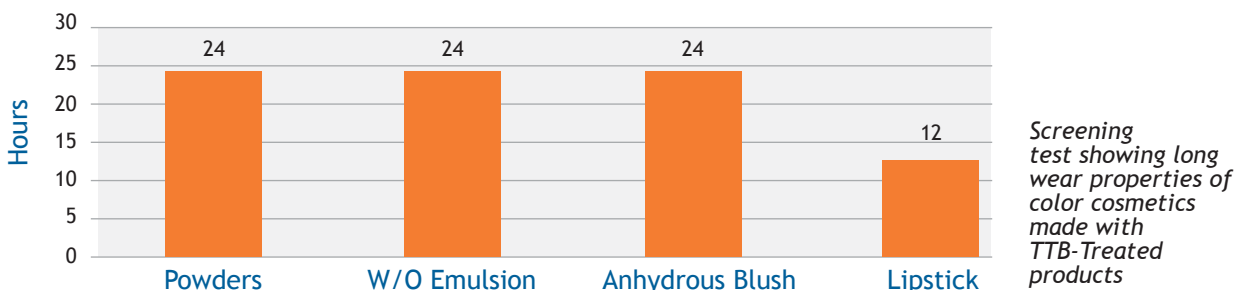
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Figure 2. Long wear properties of TTB Treated Powder (in hours)



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

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

Pigmentary Dispersions

Trade Name	INCI Name	Product Type
Dispersions in Silicone Emulsifiers		
CM3K55GRTB	Iron Oxides (CI 77491) (And) Cyclopentasiloxane (And) PEG-10 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Propylene Carbonate	Red Iron Oxide
CM3K45GYTB	Iron Oxides (CI 77492) (And) Cyclopentasiloxane (And) PEG-10 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Propylene Carbonate	Yellow Iron Oxide
CM3K65GBTB	Iron Oxides (CI 77499) (And) Cyclopentasiloxane (And) PEG-10 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Propylene Carbonate	Black Iron Oxide
CM3K65UTB	Titanium Dioxide (And) Cyclopentasiloxane (And) PEG-10 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Propylene Carbonate	Pigmentary Titanium Dioxide
Cyclopentasiloxane Dispersions		
FAS65RTB	Iron Oxides (CI 77491) (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Tocopheryl Acetate	Red Iron Oxide
FAS50YTB	Iron Oxides (CI 77492) (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Tocopheryl Acetate	Yellow Iron Oxide
FAS70BTB	Iron Oxides (CI 77499) (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Tocopheryl Acetate	Black Iron Oxide
FAS65UTB	Titanium Dioxide (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Disteardimonium Hectorite (And) Tocopheryl Acetate	Pigmentary Titanium Dioxide
Non-D5 Dispersions		
FADM55RTB	Iron Oxides (CI 77491) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate	Red Iron Oxide
FADM55YTB	Iron Oxides (CI 77492) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate	Yellow Iron Oxide
FADM60BTB	Iron Oxides (CI 77499) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate	Black Iron Oxide
FADM65UTB	Titanium Dioxide (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate	Pigmentary Titanium Dioxide



KPP-067A

Pressed Powder with TTB Treatment

Part 1

- GMS-TTB4 - Kobo Products: Mica (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone 70.48%
- BTD-TTB2 - Kobo Products: Titanium Dioxide (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone 7.00%
- BN18-I2 - Kobo Products: Boron Nitride (And) Isopropyl Titanium Triisostearate 5.00%
- MST-203 - Kobo Products: Polymethylsilsesquioxane 5.00%
- ZINC MYRISTATE - Kobo Products: Zinc Myristate 2.00%
- BGYO-TTB2 - Kobo Products: Iron Oxides (CI 77492) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone 1.00%
- BGRO-TTB2 - Kobo Products: Iron Oxides (CI 77491) (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone 0.86%
- BGBO-TTB2 - Kobo Products: Iron Oxides (CI 77499) (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Isopropyl Titanium Triisostearate 0.46%
- Methyl Paraben NF - International Sourcing: Methylparaben 0.10%
- Propyl Paraben NF - International Sourcing: Propylparaben 0.10%

Part 2

- Lexol® PG-865 - Inolex Chemical Company: Propylene Glycol Dicaprylate/Dicaprate 2.50%
- Xiameter® PMX-200 Silicone Fluid 20CS - Dow Corning: Dimethicone 2.50%
- Xiameter® PMX-200 Silicone Fluid 350 CS -Dow Corning: Dimethicone 2.00%
- SS4267 - Momentive: Dimethicone (And) Trimethylsiloxy silicate 1.00%

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.

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Hybrid Treatment TTB

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KLF-245-EU

Long Wear Liquid Foundation

Part 1

● Deionized Water - Water	30.20%
● KOBOGUARD® 50AMP - Kobo Products: <i>Acrylates/Ethylhexyl Acrylate Copolymer (And) Water (And) Aminomethyl Propanol</i>	5.00%
● Glycerin - Mapric: <i>Glycerin</i>	3.00%
● Sodium Chloride - Fisher: <i>Sodium Chloride</i>	1.00%
● Tego® SML 20 - Evonik: <i>Polysorbate 20</i>	0.80%

Part 2

● FADM65UTB - Kobo Products: <i>Titanium Dioxide (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone (And) Tocopheryl Acetate</i>	15.00%
● Dub Inin A - Stéarinerie-Dubois: <i>Isononyl Isononanoate</i>	10.00%
● CPF-3300@10cSt - Avantor/Kobo Products: <i>Phenyl Trimethicone</i>	10.00%
● Puroolan® IDD - Lanxess: <i>Isododecane</i>	5.00%
● CARESS® BN02 - Bent Tree/Kobo Products: <i>Boron Nitride</i>	5.00%
● FADM55YTB - Kobo Products: <i>Iron Oxides (CI 77492) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone (And) Tocopheryl Acetate</i>	3.00%
● Bentone Gel® VS 5 PCV - Elementis: <i>Cyclopentasiloxane (And) Distearidimonium Hectorite (And) Propylene Carbonate</i>	3.00%
● Abil® EM 90 - Evonik: <i>Cetyl PEG/PPG-10/1 Dimethicone</i>	2.50%
● KOBOGUARD® 5400 IDD - Kobo Products: <i>Hydrogenated Polycyclopentadiene (And) Isododecane</i>	2.00%
● MSS-500/3H - Kobo Products: <i>Silica</i>	1.50%
● Isolan® GPS - Evonik: <i>Polyglyceryl-4 Diisostearate/Polyhydroxystearate/Sebacate</i>	1.00%

● Symdiol® 68 - Symrise: <i>1,2-Hexanediol (and) Caprylyl Glycol</i>	1.00%
● FADM55RTB - Kobo Products: <i>Iron Oxides (CI 77491) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone (And) Tocopheryl Acetate</i>	0.70%
● FADM60BTB - Kobo Products: <i>Iron Oxides (CI 77499) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone (And) Tocopheryl Acetate</i>	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. CARESS® BN02 is a small particle size boron nitride that improves application with a luxurious feel. MSS-500/3H is an oil absorbing silica that gives oil control and matte effect.



KLP-101A

Lipstick Emulsion with TTB

Part 1

● Xiameter® PMX-200 Silicone Fluid 1000CS - Dow Corning: <i>Dimethicone</i>	8.08%
● RED 7CA C-TTB2 - Kobo Products: <i>Red 7 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone</i>	8.06%
● Xiameter® PMX-200 Silicone Fluid 50CS - Dow Corning: <i>Dimethicone</i>	6.18%
● RED 6BA S-TTB2 - Kobo Products: <i>Red 6 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone</i>	5.67%
● YELLOW 5AL S-TTB2 - Kobo Products: <i>Yellow 5 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone</i>	0.47%
● BLUE 1AL S-TTB6 - Kobo Products: <i>Blue 1 Lake (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxylethyl Dimethicone</i>	0.04%

Part 2

● SF1202 - Momentive: <i>Cyclopentasiloxane</i>	16.20%
● Parsol® MCX - DSM Nutritional Products: <i>Ethylhexyl Methoxycinnamate</i>	7.50%
● SF1528 - Momentive: <i>Cyclopentasiloxane (And) PEG/PPG-20/15 Dimethicone</i>	5.00%
● SunBoost ATB - Kobo Products: <i>Argania Spinosa Kernel Oil (And) Tocopheryl Acetate (And) Bisabolol</i>	5.00%
● SS4230 - Momentive: <i>Cyclopentasiloxane (And) Trimethylsiloxysilicate</i>	2.50%
● SF1555 - Momentive: <i>Bis-Phenylpropyl Dimethicone</i>	1.00%
● SFE839 - Momentive: <i>Cyclopentasiloxane (And) Dimethicone/Vinyl Dimethicone Crosspolymer</i>	0.50%

Part 3

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

Manufacturing Procedure

1. Premix the TTB pigments and Dimethicone in Part 1. Mix until uniform with homogenization.
2. Premix Part 2 in the main beaker. Homogenize and add in Part 1. Homogenize at 4500 rpm.
3. Premix Part 3. Slowly add Part 3 into Parts 1 and 2 under homogenizer.

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%
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KOBO*Hybrid Treatment TTB*

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