

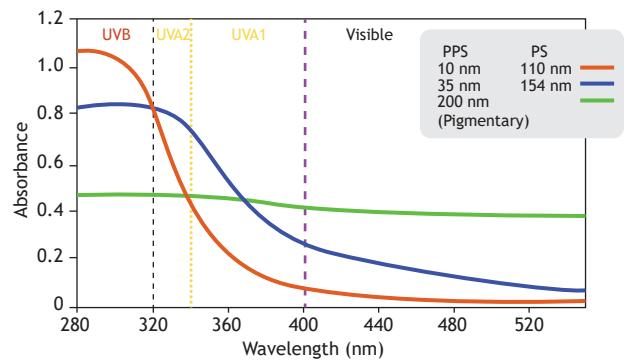
# TiO<sub>2</sub> Powders

## For Sunscreen Applications



Because of its high refractive index, Titanium dioxide (TiO<sub>2</sub>) is commonly used as a pigment. It is also an effective UV filter when the primary particle size is under 100 nm. Titanium Dioxide is ideal for formulating mild or hypoallergenic sun care products with UVA/UVB protection for babies and children, and consumers with sensitive skin. Its physical and chemical stability differentiates this filter from organic UV absorbers.

To improve stability, dispersion in formulas and performance as a UV filter, TiO<sub>2</sub> is available treated with various inorganic and organic compounds. While Aluminum Hydroxide and Alumina are common inorganic treatments, Silica treated TiO<sub>2</sub> are also available. Most Kobo TiO<sub>2</sub> powders are “Non-Nano” as measured according to the last Nano Guidance from Cosmetics Europe (Interpretation of the Definition of the Term “Nanomaterial” according to the EU Cosmetic Regulation 1223/2009, May 24, 2019).



Absorbance curves of three TiO<sub>2</sub> of different Primary Particle Sizes. Small PPS show higher UVB attenuation and less whitening than larger PPS.



KLF-263

## W/O Natural Non-Nano BB Cream



### Part 1

- Deionized Water - Water 12.15%
- Sodium Chloride - Morton Salt: Sodium Chloride 1.50%

### Part 2

- Glycerin U.S.P. Natural 96% - Vopak: Glycerin 4.00%
- Keltrol® CG - CP Kelco: Xanthan Gum 0.25%

### Part 3

- Pelemol® CCT - Phoenix Chemicals: Caprylic/Capric Triglyceride 25.00%
- GC70MZCJ-G - Kobo Products: Zinc Oxide (And) Caprylic/Capric Triglyceride (And) Jojoba Esters (And) Glyceryl Behenate/Eicosadioate 24.00%
- TTO-NJE8 - Kobo Products: Titanium Dioxide (And) Alumina (And) Jojoba Esters 15.00%
- OD75CJE - Kobo Products: Titanium Dioxide (And) Octyldodecanol (And) Jojoba Esters (And) Trihydroxystearin 5.80%
- OD55YJE - Kobo Products: Iron Oxides (CI 77492) (And) Octyldodecanol (And) Jojoba Esters (And) Trihydroxystearin 0.80%
- OD75RJE - Kobo Products: Iron Oxides (CI 77491) (And) Octyldodecanol (And) Jojoba Esters (And) Trihydroxystearin 0.15%
- OD75BJE - Kobo Products: Iron Oxides (CI 77499) (And) Octyldodecanol (And) Jojoba Esters (And) Trihydroxystearin 0.05%

### Part 4

- Dehymuls® PGPH - BASF: Polyglyceryl-2 Dipolyhydroxystearate 4.00%
- SunBoost ATB Natural - Kobo Products: Argania Spinosa Kernel Oil (And) Tocopheryl Acetate (And) Bisabolol 3.00%
- MSS-500W - Kobo Products: Silica 2.00%
- Cegesoft® SB - BASF: Butyrospermum Parkii (Shea) Butter 1.00%
- Olivem® 900 - The HallStar Company: Sorbitan Olivatate 1.00%

### Part 5

- AE Preserve® PCG - AE Chemie: Phenethylalcohol (And) Caprylhydroxamic Acid (And) Glycerin 0.30%

### Manufacturing Procedure

1. Add Part 2 (pre-mix first) to Part 1. Heat to 80°C.
2. Add Part 4 to Part 3 and mix while heating to 80°C.
3. Add Parts 1 and 2 to Parts 3 and 4 slowly, while mixing with propeller.
4. Homogenize at 7000 rpm for 5 minutes.
5. Air cool batch under homomixer to 40°C.
6. Add Part 5 and cool to room temperature with continuous mixing.

### Description

This Natural BB (Beauty Balm) Cream formula is an elegant light weight moisturizer featuring Kobo's Cosmos-approved products. The combination of GC70MZCJ-G, non-nano ZnO dispersion, and TTO-NJE8, non-nano treated TiO<sub>2</sub> offers high UVA and UVB protection. Kobo's natural Pigmentary dispersions in Octyldodecanol contain the same Jojoba Ester pigment treatment. They provide light coverage for dark spots and skin discolorations. SunBoost ATB Natural is a proprietary ratio of anti-oxidant, anti-irritant and anti-inflammatory agents that helps to boost sun protection. MSS-500W is a silica microsphere, that reduces tackiness and provides non-greasy feel.

### Active Ingredients

- Zinc Oxide 16.18%
- Titanium Dioxide 11.51%

### Testing

- SPF: in vivo on 5 subjects
- UVA-PF: in vivo on 3 subjects
- CW: FDA method









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Product Name	INCI Name	Active %	Primary Part. Size (nm)	EU Compliance
 A10-TiO2-SA-ASG8 	Titanium Dioxide (And) Aluminum Hydroxide (And) Stearoyl Glutamic Acid (And) Hydrated Silica	75	10	Compliant
A10-TiO2-SA-NJE14 	Titanium Dioxide (And) Aluminum Hydroxide (And) Hydrated Silica (And) Jojoba Esters	70	10	Compliant
A15-TiO2-SX-DS6	Titanium Dioxide (And) Silica (And) Dimethicone	76	15	Compliant
 A15-TiO2-ST-NOE8 	Titanium Dioxide (And) Hydrogenated Olive Oil Stearyl Esters (And) Aluminum Hydroxide	92	15	-
A15-TiO2-SX-NJE8 	Titanium Dioxide (And) Silica (And) Jojoba Esters	74	15	Compliant
A15-TiO2-ST-SA8 	Titanium Dioxide (And) Aluminum Hydroxide (And) Stearic Acid	80	15	Compliant
JTTO-MS7	Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone	79	15	Compliant
TTO-MS4	Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone	81	15	Compliant
TTO-NJE8  	Titanium Dioxide (And) Alumina (And) Jojoba Esters	76	15	Compliant
TTO-TTB7	Titanium Dioxide (And) Alumina (And) Isopropyl Titanium Triisostearate (And) Triethoxysilyethyl Polydimethylsiloxyethyl Dimethicone	77	15	-
TTO-SIM14	Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone (And) Triethoxycaprylylsilane	73	15	-
MT-500B-NJE5 	Titanium Dioxide (And) Jojoba Esters	93	35	Compliant
A35-TiO2-MDS6	Titanium Dioxide (And) Hydrogen Dimethicone (And) Dimethicone	92	35	Compliant
TiO2 STT-65S-I3	Titanium Dioxide (And) Isopropyl Titanium Triisostearate	94	30 - 50	-
MT-600B-MS7	Titanium Dioxide (And) Hydrogen Dimethicone	93	50	Compliant
MT-600B-11S5*	Titanium Dioxide (And) Triethoxycaprylylsilane	95	50	-

\* This TiO<sub>2</sub> Powder was found to be a nanomaterial when tested by light scattering method



Raw material approved by Ecocert in accordance with the Cosmos and Ecocert Standards

This table was prepared to assist in formulating with Titanium Dioxide Powders. The information contained herein is believed to be accurate at the time of printing and represents typical values, but should not be used as a substitute for product specification sheets.

The Non-Nano Powders listed in this flyer have been tested by light scattering method, according to the Cosmetics Europe Nano Guidance Package; Part II: Interpretation of the Definition of the Term “nanomaterial”

according to the EU Cosmetic Regulation 1223/2009, published on May 24, 2019.

We are also listing the primary particle size - PPS (nm) - for comparison purposes.

EU Compliance: These TiO<sub>2</sub> comply with the conditions for Titanium Dioxide (nano) as set forth in the Annex VI to Regulation (EC) No 1223/2009.

We recommend that customers make their own assessment when using particle size data for the purpose of identifying nanomaterials in their finished formulations.

Please contact our team at [techservice@koboproductsinc.com](mailto:techservice@koboproductsinc.com) for additional information on this subject.