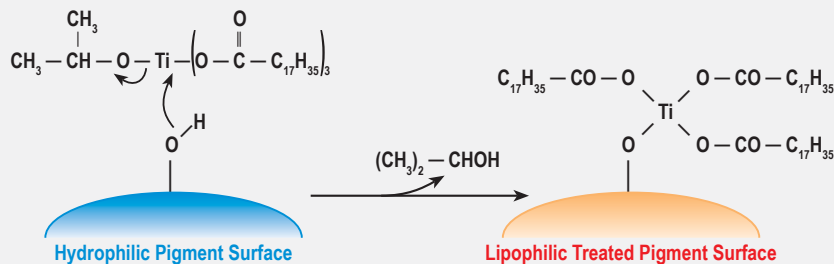


# Titanate Treatment



INCI name: Isopropyl Titanium Triisostearate

Code: ITT



US 5108736A

Method of incorporating cosmetic pigments and bases into products containing oil and water phases

Since the O-Ti bond is very liable to the attack of hydroxyl groups and the isopropoxy group can be easily removed, ITT is very reactive to almost all pigments and forms a uniform coating of lipophilic isostearate groups. There are abundant fatty ester groups on the treated surface; therefore, the titanate treated pigments can be easily wetted by and dispersed in organic vehicles, like esters, mineral oils or petrolatum. Oil absorption is substantially reduced and loading of the pigments in the formula can thus be increased.

The unique properties of titanate treatment are clearly demonstrated by dispersing a treated pigmentary TiO<sub>2</sub> in an ester: the viscosity is dramatically reduced compared to non-treated pigment or to pigments treated either with methicone or silane (see picture below).

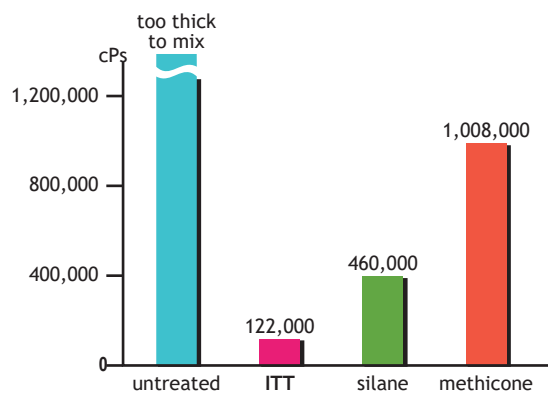
Titanate-treated pigments and powders are dispersible in

many esters, natural oils, and hydrocarbons at over 70% solids; optimizing the percent solids of the dispersion will fully develop pigment properties.

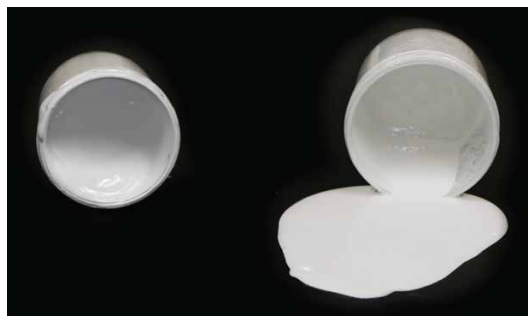
Since these treated pigments disperse so well and have an excellent affinity to the skin, they are used to develop dry (non-greasy) feeling cream to powder formulas, one-step make-ups and to create new types of liquid foundations, cheek color, eye-shadow and sunscreen formulations.

## Viscosity of 40% Titanium Dioxide dispersions in Octyldodecyl Neopentanoate

(40% titanium dioxide in Elefac I-205)



ITT-treated pigment dispersion in an ester has a lower viscosity than untreated or silicone treated pigment.



Viscosity is reduced by ITT treatment: while a dispersion of non-treated pigment in an ester (40% solids in Elefac I-205) is unable to flow, the same amount of ITT-treated pigment dispersed in the same ester gives a liquid dispersion.

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A solid surface can be wetted spontaneously by a liquid consisting of a lower surface energy. Compared with silicones or fluorinated coating, ITT has a much higher surface energy. This makes pigments containing ITT Surface Treatment much easier to be wetted by esters and oils. There is a lot of interest in formulating high pigment products for today's market, especially lipsticks. Kobo has the technology to produce extremely high percentage pigment dispersions using our patented ITT treatment, which can contribute to end products of high intensity

shades. INBP (Ester) and SW (Synthetic Wax) dispersions containing ITT treatment offer full color development and ease of manufacturing. Lipstick formula KLP-024C (see below) offers intense color using 18% pigment from only 30% dispersions, leaving more room for additional pigment or other ingredients, if desired. If formulated with conventional dispersions of about 28% pigment, this formula would need at least 64% of dispersion to achieve the 18% pigment. The same intensity and feel would not be achievable.



## KLP-024C High Impact Color Lipstick

### Part 1

● Castor Oil - Alzo International Inc.: <i>Ricinus Communis (Castor) Seed Oil</i>	16.91%
● Softisan® 645 - Sasol: <i>Bis-Diglyceryl Polyacryladipate-1</i>	12.00%
● Wickenol 155 - Alzo International Inc.: <i>Ethylhexyl Palmitate</i>	11.00%
● Candelilla Wax SP 75 - Strahl & Pitsch: <i>Euphorbia Cerifera (Candelilla) Wax</i>	6.00%
● Ozokerite Wax White SP 1020 - Strahl & Pitsch: <i>Ozokerite</i>	4.50%
● Lipowax® D - Lipo Chemicals: <i>Cetearyl Alcohol (And) Ceteareth-20</i>	3.00%
● Microcrystalline Wax SP-89 - Strahl & Pitsch: <i>Microcrystalline Wax</i>	2.00%
● MSS-500/3H - Kobo Products: <i>Silica</i>	1.00%
● BHT Food Grade Crystal - Protameen: <i>BHT</i>	0.10%
● Propyl Paraben NF - International Sourcing: <i>Propylparaben</i>	0.10%

### Part 2

● INBP45R7C - Kobo Products: <i>Red 7 Lake (And) Isononyl Isononanoate (And) Isopropyl Myristate (And) Stearalkonium Hectorite (And) Isopropyl Titanium Triisostearate (And) Propylene Carbonate (And) Polyhydroxystearic Acid</i>	15.00%
● INBP75ER - Kobo Products: <i>Iron Oxides (CI 77491) (And) Isononyl Isononanoate (And) Isopropyl Myristate (And) Stearalkonium Hectorite (And) Polyhydroxystearic Acid (And) Isopropyl Titanium Triisostearate (And) Propylene Carbonate</i>	15.00%
● Shea Butter - Cognis Corp: <i>Shea Butter</i>	2.50%
● Castor Oil - Alzo International Inc.: <i>Ricinus Communis (Castor) Seed Oil</i>	0.89%

### Part 3

● KOBOGUARD® 5400 CCT - Kobo Products: <i>Hydrogenated Polycyclopentadiene (And) Caprylic/Capric Triglyceride</i>	5.00%
● KTZ® CLASSIC WHITE-I2 - Kobo Products: <i>Mica (And) Titanium Dioxide (And) Isopropyl Titanium Triisostearate</i>	5.00%

### Manufacturing Procedure

1. In main tank equipped with propeller agitation, combine Part 1 ingredients and heat to 80°C - 85°C in water bath.
2. Premix part 2 ingredients until homogeneous.
3. Continue mixing Part 1 for 20 minutes and add Part 2 to Part 1.
4. Add Part 3 to batch and continue mixing for 30 minutes.
5. Once shade is adjusted, begin force cooling batch. Continue cooling to 78°C - 80°C.
6. Pour into molds at 78°C - 80°C.

*Note: Keep continual mixing before and after each mold.*

### Description

This high impact color lipstick contains Kobo's Pigmentary Dispersions, INBP75ER and INBP45R7C, which are used for their high percentage of color. They also help to improve wear and formula aesthetics. KTZ® CLASSIC WHITE is treated with ITT for optimal glide and creates a shimmering, frosted effect. Kobo's Microsphere, MSS-500/3H, is used to achieve better application and helps to reduce sweating. KOBOGUARD® 5400 CCT gives gloss to the formula and helps to provide long wear properties.

Trade Name	INCI Name	Product Type
BRO-I2	Iron Oxides (CI 77491) (And) Isopropyl Titanium Triisostearate	Red Iron Oxide
BYO-I2	Iron Oxides (CI 77492) (And) Isopropyl Titanium Triisostearate	Yellow Iron Oxide
BBO-I2	Iron Oxides (CI 77499) (And) Isopropyl Titanium Triisostearate	Black Iron Oxide
BBR-I2	Iron Oxides (And) Isopropyl Titanium Triisostearate	Brown Iron Oxide
BUO-TA-I2	Iron Oxides (And) Talc (And) Isopropyl Titanium Triisostearate	Umber
BGCO-I2	Chromium Oxide Greens (And) Isopropyl Titanium Triisostearate	Green Chromium
BHG-I3	Chromium Hydroxide Greens (And) Isopropyl Titanium Triisostearate	Green Chromium Hydroxide
BFF-I2	Ferric Ammonium Ferrocyanide (And) Isopropyl Titanium Triisostearate	Blue Ferric Amm. Ferrocyanide
BMV-I2	Manganese Violet (And) Isopropyl Titanium Triisostearate	Manganese Violet
BUB-I2	Ultramarines (And) Isopropyl Titanium Triisostearate	Ultramarine Blue
BUP-I2	Ultramarines (And) Isopropyl Titanium Triisostearate	Ultramarine Pink
BUV-I2	Ultramarines (And) Isopropyl Titanium Triisostearate	Ultramarine Violet
BTD-401	Titanium Dioxide (And) Isopropyl Titanium Triisostearate	Pigmentary TiO <sub>2</sub>
RBTD-I2	Titanium Dioxide (And) Isopropyl Titanium Triisostearate	Pigmentary TiO <sub>2</sub>
BLUE 1AL-I2	Blue 1 Lake (And) Isopropyl Titanium Triisostearate	FD&C Blue No. 1 Aluminum Lake
RED 6BA S8-I2	Red 6 Lake (And) Isopropyl Titanium Triisostearate	D&C Red No. 6 Barium Lake
RED 7CA E-I2	Red 7 Lake (And) Isopropyl Titanium Triisostearate	D&C Red No. 7 Calcium Lake
RED 7CA K-I2	Red 7 Lake (And) Isopropyl Titanium Triisostearate	D&C Red No. 7 Calcium Lake
RED 27AL-I2	Red 27 Lake (And) Isopropyl Titanium Triisostearate	D&C Red No. 27 Aluminum Lake
RED 28AL U-I3	Red 28 Lake (And) Isopropyl Titanium Triisostearate	D&C Red No. 28 Aluminum Lake
RED 33AL-I5	Red 33 Lake (And) Isopropyl Titanium Triisostearate	D&C Red No. 33 Aluminum Lake
RED 40AL-I2	Red 40 Lake (And) Isopropyl Titanium Triisostearate	FD&C Red No. 40 Aluminum Lake
YELLOW 5AL-I2	Yellow 5 Lake (And) Isopropyl Titanium Triisostearate	FD&C Yellow No. 5 Aluminum Lake
YELLOW 6AL C-I2	Yellow 6 Lake (And) Isopropyl Titanium Triisostearate	FD&C Yellow No. 6 Aluminum Lake
<b>New</b> CELLULOBEADS D-10-I3	Cellulose (And) Isopropyl Titanium Triisostearate	Natural Polymer Microsphere
BPA-5I5	Polymethylmethacrylate (And) Isopropyl Titanium Triisostearate	Polymer Microsphere
NYLON 10-I2	Nylon 12 (And) Isopropyl Titanium Triisostearate	
GMS-I2		Sericite
MICA S-I2	Mica (And) Isopropyl Titanium Triisostearate	Mica
BTS-CO1		
TALC N-I2	Talc (And) Isopropyl Titanium Triisostearate	Talc
ASO-I2	Aluminum Starch Octenylsuccinate (And) Isopropyl Titanium Triisostearate	Aluminum Starch Octenylsuccinate
TiO2 STT-65S-I3	Titanium Dioxide (And) Isopropyl Titanium Triisostearate	UV-Attenuation TiO <sub>2</sub>
MZO-35-I3		
ZnO-USP1-I2	Zinc Oxide (And) Isopropyl Titanium Triisostearate	UV-Attenuation ZnO
ZnO-C-I2		
TiO2-IR300-I2	Titanium Dioxide (And) Isopropyl Titanium Triisostearate	
A1K-TiO2-I2	Titanium Dioxide (And) Aluminum Hydroxide (And) Isopropyl Titanium Triisostearate	IR-Attenuation TiO <sub>2</sub>



KEY-059E

## Eyeshadow with KOBPEARL® PERPETUAL SHEEN GreenBlue

### Part 1

- GMS-I2 - Kobo Products: *Mica (And) Isopropyl Titanium Triisostearate* 40.70%
- TALC N-I2 - Kobo Products: *Talc (And) Isopropyl Titanium Triisostearate* 24.50%
- KOBPEARL® PERPETUAL SHEEN GreenBlue - Kobo Products: *Synthetic Fluorphlogopite (And) Silica (And) Titanium Dioxide* 10.00%
- BLUE 1AL-I2 - Kobo Products: *Blue 1 Lake (And) Isopropyl Titanium Triisostearate* 4.74%
- BGCO-I2 - Kobo Products: *Chromium Oxide Greens (And) Isopropyl Titanium Triisostearate* 3.00%
- MSS-500/20N - Kobo Products: *Silica* 3.00%
- BFF-I2 - Kobo Products: *Ferric Ammonium Ferrocyanide (And) Isopropyl Titanium Triisostearate* 2.87%
- BBO-I2 - Kobo Products: *Iron Oxides (CI 77499) (And) Isopropyl Titanium Triisostearate* 1.94%
- YELLOW 5AL-I2 - Kobo Products: *Yellow 5 Lake (And) Isopropyl Titanium Triisostearate* 1.00%
- Methyl Paraben NF - International Sourcing: *Methylparaben* 0.15%
- Propyl Paraben NF - International Sourcing: *Propylparaben* 0.10%

### Part 2

- Xiameter® PMX-200 Silicone Fluid 1000 CS - Dow Coming: *Dimethicone* 2.67%
- Xiameter® PMX-200 Silicone Fluid 350 CS - Dow Coming: *Dimethicone* 2.67%
- Xiameter® PMX-200 Silicone Fluid 20CS - Dow Coming: *Dimethicone* 2.66%

### 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 700 psi.

### Description

This Eye Shadow Features Kobo's **Isopropyl Titanium Triisostearate (ITT) Treatment** which is very reactive to almost all pigments and forms a uniform coating of lipophilic isostearate groups. MSS-500/20N gives an excellent application and soft focus effect while helping to fill in lines and wrinkles. KOBPEARL® PERPETUAL SHEEN GreenBlue gives a pearlescent effect to the formula.



KLP-109C

## Lipstick with CO2OR7C

### Part 1

- CO2OR7C - Kobo Products: *Ricinus Communis (Castor) Seed Oil (And) Red 7 Lake (And) Isopropyl Titanium Triisostearate* 50.00%
- Softisan® 645 - IOI Oleo GmbH: *Bis-Diglyceryl Polyacyladipate-1* 11.00%
- Wickenol 155 - Alzo International Inc.: *Ethylhexyl Palmitate* 9.80%
- Candelilla Wax SP 75 - Strahl & Pitsch: *Euphorbia Cerifera (Candelilla) Wax* 6.00%
- KOBGUARD® 5400 CCT - Kobo Products: *Hydrogenated Polycyclopentadiene (And) Caprylic/Capric Triglyceride* 5.00%
- KTZ® CLASSIC WHITE-I2 - Kobo Products: *Mica (And) Titanium Dioxide (And) Isopropyl Titanium Triisostearate* 5.00%
- Ozokerite Wax White SP 1020P - Strahl & Pitsch: *Ozokerite* 4.50%
- Lipowax® D - Vantage: *Cetearyl Alcohol (And) Ceteareth-20* 3.00%
- Cetiol® SB 45 - BASF: *Shea Butter* 2.50%
- Microcrystalline Wax SP-89 - Strahl & Pitsch: *Microcrystalline Wax* 2.00%
- SP-500 - Toray/Kobo Products: *Nylon-12* 1.00%

### Part 2

- BHT Food Grade Crystal - Protameen Chemicals: *BHT* 0.10%
- Propyl Paraben NF - International Sourcing: *Propylparaben* 0.10%

### Manufacturing Procedure

1. Combine all ingredients and melt at 80°C.
2. Hand mix with a spatula for 4 minutes.

**Note:** Formula fully developed at 4 minutes due to use of CO2OR7C when compared to the Control formula, KLP-109A.

### Description

This lipstick features Kobo's **CO2OR7C**, a castor oil dispersion, which offers full color development, better stability, and improved gloss. **KTZ® CLASSIC WHITE-I2** is a pearlescent pigment that gives the formula luminescence. KOBGUARD® 5400 CCT, an oil soluble polymer, helps to enhance adhesion and substantivity of the formula. It helps to improve water resistance and rub resistance while imparting gloss. SP-500, a polymer microsphere, offers a ball-bearing effect which will impart finished products with an elegant silky texture, increased payoff, and enhanced slip.