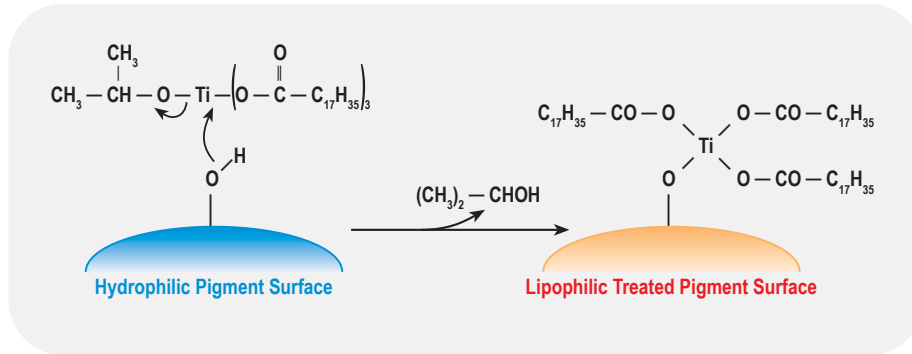


Titanate

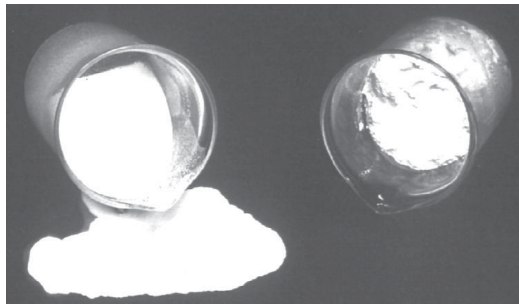
Treatment - ITT



Isopropyl Titanium Triisostearate (ITT) surface treatment is one of Kobo's patented technologies (US Pat. 4,877,604 - M.L. Schlossman).

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_2 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).



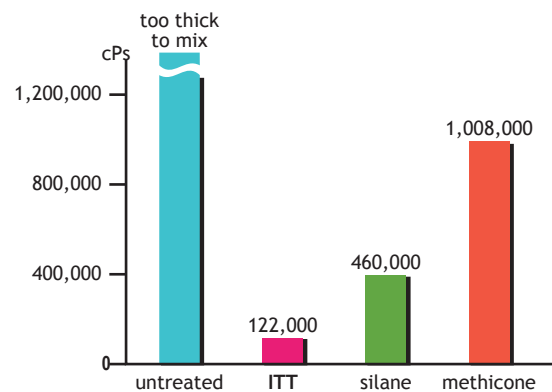
Viscosity is reduced by ITT treatment: while a dispersion of non-treated pigment in an ester (40% solids in Elefac I-205) is unable to flow, the same amount of ITT-treated pigment dispersed in the same ester gives a liquid dispersion.

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 silane and silicone treated pigment.

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



KEY-059E

Eyeshadow with KOBOPEARL® 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%
- KOBOPEARL® 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. KOBOPEARL® 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%
- KOBOGUARD® 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. KOBOGUARD® 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.