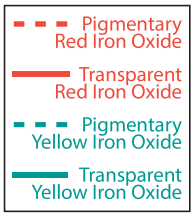
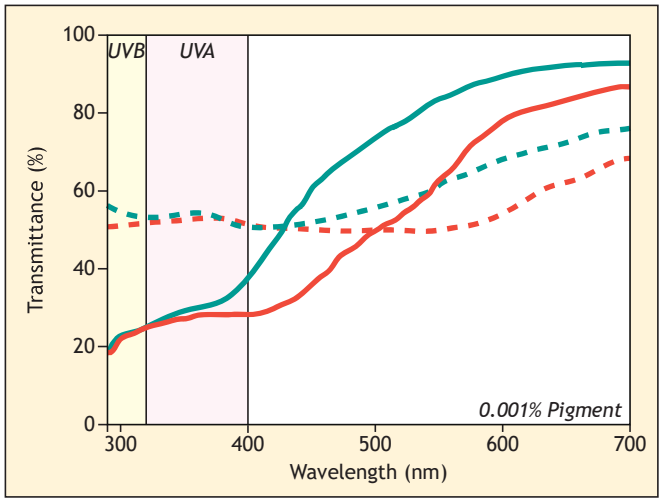
Transparent Iron Oxides

Dispersions & Powders



Transparent Iron Oxides have smaller particle sizes than regular Iron Oxides and are available in red and yellow. They are particularly useful to provide a light shade in formulas while keeping a natural finish on the skin. Mineral sunscreen agents like Titanium Dioxide and Zinc Oxide are known to give a chalky or bluish aspect to skin of darker tones. The addition of Transparent Iron Oxides helps create tinted sunscreens to mitigate this effect and allow a more natural look. Depending on how much is used in a formula, they can also contribute to UVA and UVB protection. Because of their size, Transparent Iron Oxides agglomerate very strongly, making them difficult to disperse. In addition to surface treated powders, Kobo offers dispersions of Transparent Iron Oxides in different media that can be easily incorporated into a formulation.





Transmittance curves of Transparent Yellow Iron Oxide and Transparent Red Iron Oxide compared to Pigmentary Yellow Iron Oxide and Pigmentary Red Iron Oxide

WO 2008067186, JP pending
UV protective cosmetic product incorporating titanium dioxide and transparent iron oxide

---

KSL-452B

W/O All-in-One Protective Sunscreen Cream

SPF 31 | CW 372

Part 1
- **NHP60MZ8SG** - Kobo Products: *Zinc Oxide (And) C13-15 Alkane (And) Stearoyl Glutamic Acid (And) Polyhydroxystearic Acid* 20.00%

Part 2
- **A1K-TiO2-11S2** - Kobo Products: *Titanium Dioxide (And) Aluminum Hydroxide (And) Triethoxycaprylylsilane* 3.20%
- Bentone® 38 V CG - Elementis: *Disteardimonium Hectorite* 1.00%

Part 3
- COSMOL™ 43V - Ikeda: *Polyglyceryl-2 Triisostearate* 1.50%

Part 4
- **NHP55STS** - Kobo Products: Titanium Dioxide (And) C13-15 Alkane (And) Stearic Acid (And) Aluminum Hydroxide (And) Polyhydroxystearic Acid 10.00%
- **TNP45TEL** - Kobo Products: *Titanium Dioxide (And) C12-15 Alkyl Benzoate (And) Stearic Acid (And) Silica (And) Alumina (And) Polyhydroxystearic Acid* 9.40%
- KSG-210 - Shin-Etsu: *Dimethicone (and) Dimethicone/PEG-10/15 Crosspolymer* 5.00%
- X-22-6695B - Shin-Etsu: *Simmondsia Chinensis (Jojoba) Seed Oil (and) Lauryl Dimethicone/Polyglycerin-3 Crosspolymer* 2.50%
- **GCG50TRSG** -Kobo Products: *Iron Oxides (CI 77491) (And) Caprylic/Capric Triglyceride (And) Polyglyceryl-3 Diisostearate (And) Stearoyl Glutamic Acid* 0.10%

Part 5
- Deionized Water - *Water* 40.35%
- Butylene Glycol - Pride Solvents & Chemicals Co. of NJ, Inc.: *Butylene Glycol* 3.00%
- Sodium Chloride - Morton Salt: *Sodium Chloride* 2.90%
- SymDiol® 68 - Symrise: *1,2-Hexanediol (And) Caprylyl Glycol* 0.70%
- Lexgard® O - Inolex: *Caprylyl Glycol* 0.30%
- Dermofeel® PA-3 - Dr. Straetmans/ Evonik: Sodium Phytate 0.05%

Manufacturing Procedure
1. Add Part 1 to main beaker under homogenizer.
2. Pulverize Part 2. Then add to Part 1. Mix until uniform.
3. Add Part 3 to Parts 1 and 2. Continue mixing for 5 min.
4. Add Part 4. Continue mixing until uniform.
5. Combine Part 5 in separate beaker. Mix until fully dissolved.
6. Slowly Add Part 5 to main beaker under homogenizer.

Note
Maintain batch at room temperature during high shear process under homomixer by using cold water bath.

Description
This non-greasy, quick-drying sunscreen cream gives a sheer, matte finish to skin. It offers UV, R and HEV/Blue Light protection. The W/O formula features Kobo's **NHP60MZ8SG** and **NHP55STS** dispersions which are added for UVA/UVB protection. **A1K-TiO2-11S2**, a granular TiO_2 powder treated with Triethoxycaprylylsilane effectively attenuates IR radiation in the near infrared range. **TNP45TEL** provides HEV protection. Transparent Iron Oxide dispersion, **GCG50TRSG**, provides a light pink tint.

Active Ingredients
Titanium Dioxide 8.24%
Zinc Oxide 11.40%

Testing
SPF: in vivo on 5 subjects
CW: FDA Method

Carrier/ Solvent	Product Name	INCI Name
		Dispersions
Silicone Emulsifiers	FAF40TRR	*Cyclopentasiloxane (And) Iron Oxides (CI 77491) (And) Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone (And) Hydrogen Dimethicone (And) PEG/PPG-18/18 Dimethicone*
	FAF40TRY	*Cyclopentasiloxane (And) Iron Oxides (CI 77492) (And) Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone (And) Hydrogen Dimethicone (And) PEG/PPG-18/18 Dimethicone*
Esters/Oils	TNP55TRR	*Iron Oxides (CI 77491) (And) C12-15 Alkyl Benzoate (And) Triethoxycaprylylsilane (And) Polyhydroxystearic Acid*
	TNP55TRY	*Iron Oxides (CI 77492) (And) C12-15 Alkyl Benzoate (And) Triethoxycaprylylsilane (And) Polyhydroxystearic Acid*
Natural Esters/Oils	COP40TRR New	*Ricinus Communis (Castor) Seed Oil (And) Iron Oxides (CI 77491) (And) Polyhydroxystearic Acid (And) Isopropyl Titanium Triisostearate*
	COP40TRY New	*Ricinus Communis (Castor) Seed Oil (And) Iron Oxides (CI 77492) (And) Polyhydroxystearic Acid (And) Isopropyl Titanium Triisostearate*
	GCG50TRSG New	*Iron Oxides (CI 77491) (And) Caprylic/Capric Triglyceride (And) Polyglyceryl-3 Diisostearate (And) Stearoyl Glutamic Acid*
	GCG50TYSG New	*Iron Oxides (CI 77492) (And) Caprylic/Capric Triglyceride (And) Polyglyceryl-3 Diisostearate (And) Stearoyl Glutamic Acid*
Volatile Non-D5 Silicones	DIM2F50TRR	*Dimethicone (And) Iron Oxides (CI 77491) (And) PEG-9 Polydimethylsiloxyethyl Dimethicone (And) Hydrogen Dimethicone (And) Polyglyceryl-4 Isostearate (And) Cetyl PEG/PPG-10/1 Dimethicone (And) Hexyl Laurate*
	DIM2F45TRY	*Dimethicone (And) Iron Oxides (CI 77492) (And) PEG-9 Polydimethylsiloxyethyl Dimethicone (And) Hydrogen Dimethicone (And) Polyglyceryl-4 Isostearate (And) Cetyl PEG/PPG-10/1 Dimethicone (And) Hexyl Laurate*
		*Powders **
Hydrophobic	TRR-100-MS7	*Iron Oxides (CI 77491) (And) Methicone*
	TRY-100-MS7	*Iron Oxides (CI 77492) (And) Methicone*
Hydrophilic	TRR-100-SW2	*Iron Oxides (CI 77491) (And) PEG-8 Methyl Ether Triethoxysilane*
	TRY-100-SW2	*Iron Oxides (CI 77492) (And) PEG-8 Methyl Ether Triethoxysilane*

** Please note, Transparent Iron Oxides are extremely difficult to disperse. Kobo dispersions containing these powders are highly recommended when possible. This will ensure fully dispersed particles in the final formula.*

