

Balanced UV Protection

The UV Balance requirement came into effect in order to ensure protection of the skin from both UVB and UVA rays. Thus, for every 3 units of UVB protection there must also be 1 unit of UVA protection being provided in an SPF product. When working with inorganic sunscreen ingredients such as micronized Titanium Dioxide or Zinc Oxide it is important to find the right combination of particle sizes in order to yield the 3:1 ratio for protection. In order to achieve these results, Kobo has developed both UV Balance Powders and Dispersions, as well as recommended use levels for specific combinations of dispersions.

For Sunscreens

While formulating with inorganic sunscreen ingredients, it is difficult to achieve a high SPF and UV Balanced Formula. TiO₂ is often too whitening while ZnO is not an efficient UVB agent. By combining TiO₂ and ZnO of correct particle sizes, balanced UV protection can be achieved. A combination of very fine ZnO and large ZnO can also give high SPF and provide UV Balanced Protection. The following dispersion combinations are recommended:

Combination of TiO₂ and ZnO for Balanced UV protection

For Oil Phase

	TNP50T7	TiO ₂ %	TNP65MZS	ZnO%
SPF 30 (KSL-043E)	13	5.0	20	12.0
SPF 20	8.6	3.3	15	9.0
SPF 15	6.5	2.5	11.5	7.0

	IN65S4	TiO ₂ %	INH73MZ	ZnO%
SPF 30 (KSL-043E)	11.3	6.0	17	12.0
SPF 20	8	4.25	12	8.5
SPF 15	6	3.2	9	6.35

For Silicone Phase

	CM3K40T4	TiO ₂ %	CM3K50XZ4	ZnO%
SPF 30	22	7.0	25	12.0
SPF 20	15.6	5.0	19	9.0
SPF 15	12.5	4.0	14.6	7.0

Combination of ZnO for Balanced UV protection

	INH73MZ	ZnO%
SPF 15 (KSL-016)	22	16.0

	CM3K50XZ4	ZnO%
SPF 15	32	15.0

	TNP65MZS	ZnO%
SPF 15	25	15.0

UV Balance Sunscreen Featuring TNP50T7 & TNP65MZS

in vivo SPF 32
in vivo UVA-PF 11

KSL-143E

Part 1

- Deionized Water 39.02%
- Aculyn™ 44 - Rohm & Haas: PEG-150/Decyl Alcohol/SMDI Copolymer 3.00%
- Sodium Chloride - Morton Salt: Sodium Chloride 0.56%
- Allantoin - RITA Corp.: Allantoin 0.20%

Part 2

- TNP65MZS - Kobo Products: Zinc Oxide (And) C12-15 Alkyl Benzoate (And) Polyhydroxystearic Acid (And) Triethoxycaprylylsilane 19.81%
- TNP50T7 - Kobo Products: C12-15 Alkyl Benzoate (And) Titanium Dioxide (And) Alumina (And) Polyhydroxystearic Acid (And) Methicone 13.00%
- Finsolv® TN - Finetex: C12-15 Alkyl Benzoate 8.00%
- ABIL® Wax 9801 - Evonik: Cetyl Dimethicone 3.00%
- Hallbrite® BHB - Hallstar: Butyloctyl Salicylate 3.00%
- ABIL® WE 09 - Evonik: Polyglyceryl-4 Isostearate (And) Cetyl PEG/PPG-10/1 Dimethicone (And) Hexyl Laurate 2.50%
- Arlacel™ P135 - Croda: PEG-30 Dipolyhydroxystearate 2.50%
- Floraesters® 15 - Floratech: Jojoba Esters 2.10%
- Argan Oil - Centerchem, Inc.: Argan Oil 1.00%
- SUMECTON SAN-P - Kobo Products: Quaternium-18 Hectorite 1.00%

- Shea Butter- RITA Corp.: Shea Butter 1.00%
- Methyl Paraben NF - International Sourcing: Methylparaben 0.15%
- Propylene Carbonate - Spectrum Chemical Mfg Corp.: Propylene Carbonate 0.10%
- Propyl Paraben NF - International Sourcing: Propylparaben 0.06%

Manufacturing Procedure

1. In a double jacketed stainless steel tank equipped with a lightening type mixer, along with side sweep action, mix ingredients in Part 1 in the order listed.
2. Heat Part 1 to 75°C.
3. In a second double jacketed stainless steel tank equipped with a lightening type mixer, heat Part 2 to 75°C.
4. Add Part 1 to Part 2 very slowly with mixing using a lightening type mixer.
5. Cool emulsion further to 33°C with sweep action mixing.

Description

Elegant W/O sunscreen that uses Kobo's Titanium Dioxide Dispersion, TNP50T7, and Kobo's Zinc Oxide Dispersion, TNP65MZS. The proportion of Titanium Dioxide to Zinc Oxide provides a 3:1 ratio of SPF to UVA-PF while still being non-whitening on the skin.

Active Ingredients

- Titanium Dioxide 5.10%
- Zinc Oxide 12.20%

KOBO

Kobo Products, Inc.
3474 So. Clinton Ave.
So. Plainfield, NJ 07080
USA
tel +1 (908) 757-0033
fax +1 (908) 757-0905

Kobo Products, SAS
135 Rue Buissonniere
Quartier Bouysset
31670 LABEGE
France
tel +33 (0)5-62-88-77-40
fax +33 (0)5-62-88-77-49

Kobo Dispathek, Inc.
1-4-8
Nihombashi-bakurocho
Chuoku, Tokyo, 103-0002
Japan
tel +81-3-3663-8049
fax +81-3-3664-8679

Kobo Brasil Ltda.
Rua Bambooré n.41
Ipiranga - São Paulo/SP
04278-060
Brasil
tel +55 (11) 5062-0634

Balanced UV Protection

UV Balance Natural Pressed Powder

in vivo SPF 17
in vivo UVA-PF 6

KPP-021

Part 1

- Talc N-NJE2 - Kobo Products: *Talc (And) Jojoba Esters* 45.16%
- GMS-NJE3 - Kobo Products: *Mica (And) Jojoba Esters* 25.00%
- UV BALANCE POWDER 100-NJE8 - Kobo Products: *Titanium Dioxide (And) Alumina (And) Jojoba Esters* 18.79%
- ZINC MYRISTATE - Kobo Products: *Zinc Myristate* 2.50%
- BYO-NJE3 - Kobo Products: *Iron Oxides (CI 77492) (And) Jojoba Esters* 1.75%
- BRO-NJE2 - Kobo Products: *Iron Oxides (CI 77491) (And) Jojoba Esters* 0.40%
- BBO-NJE2 - Kobo Products: *Iron Oxides (CI 77499) Jojoba Esters* 0.20%
- Methyl Paraben NF - International Sourcing: *Methylparaben* 0.10%
- Propyl Paraben NF - International Sourcing: *Propylparaben* 0.10%

Manufacturing Procedure

1. Micropulverize Part 1 until color is fully developed.
2. Add Part 2 to Part 1.
3. Blend well.
4. Press at 250 psi.

Description

This pressed, natural, mineral powder contains vegetable derived, Jojoba Ester treated UV BALANCE POWDER 100 to achieve an SPF 17 and a UVA-PF 6. Kobo's Jojoba Ester treated Pigments, Talc, and Sericite give a great feel and even application, and help adherence on the skin for long wear. ZINC MYRISTATE is used as a dry binder.

Active Ingredients

Titanium Dioxide 16.50%

Part 2

- Florasun® 90 - Floratech: *Helianthus Annuus (Sunflower) Seed Oil* 6.00%

For Color Cosmetics

UV Balance Powder 100 consists of various primary particle sized hydrophobic TiO₂. When formulated correctly, this product offers good coverage on the skin while providing a 3:1 ratio.

Balanced TiO₂ Sunscreen Featuring TNQP55T5S

in vivo SPF 32
in vivo UVA-PF 11
CW 376

KSL-181A

Part 1

- Finsolv® TN - Finetex: *C12-15 Alkyl Benzoate* 12.00%
- Squalane NF - Barnet Products: *Squalane* 3.00%
- ARGAN OIL - Centerchem: *Argania Spinosa Kernel Oil* 1.00%
- KOBOGUARD® 5400 CCT - Kobo Products: *Hydrogenated Polycyclopentadiene (And) Caprylic/Capric Triglyceride* 1.00%
- SUMECTON SAN-P - Kobo Products: *Quaternium-18 Hectorite* 0.50%
- Covi-ox® T-50- Cognis Corp.: *Tocopherol* 0.30%

Manufacturing Procedure

1. Combine Part 1 and homogenize.
2. Add Part 2 to Part 1 while homogenizing.
3. Combine Part 3 and heat slightly.
4. Heat Parts 1 and 2 slightly.
5. Homogenize Parts 1 and 2 while adding Part 3.
6. Heat Part 4 slightly.
7. Add Part 4 while homogenizing.
8. Add Part 5 at end.

Description

This sunscreen has a light, elegant feel with minimal whitening. TNQP55T5S offers broad spectrum protection. Koboguard® 5400 CCT gives gloss to the formula and helps to provide long wear properties. SUMECTON SAN-P gives thickening and stabilizes the emulsion. CareSil® CPF-3300 is a clear, high refractive index, low viscosity silicone that is easily incorporated into formulations.

Active Ingredients

Titanium Dioxide 9.02%

Part 2

- Propylene Carbonate - Spectrum Chemical Mfg Corp.: *Propylene Carbonate* 0.05%

Part 3

- TNQP55T5S - Kobo Products: *C12-15 Alkyl Benzoate (And) Titanium Dioxide (And) Stearic Acid (And) Aluminum Hydroxide (And) Polyhydroxystearic Acid* 20.00%
- Abil® WE 09 - Evonik: *Polyglyceryl-4 Isostearate (And) Cetyl PEG/PPG-10/1 Dimethicone (And) Hexyl Laurate* 3.00%
- Arlachel™ P135 - Croda: *PEG-30 Dipolyhydroxystearate* 2.00%
- CPF-3300@20cSt - Nusil/Kobo Products: *Phenyl Trimethicone* 1.00%

Part 4

- Deionized Water 52.90%
- Aculyn™ 44 - Rohm & Haas: *PEG-150/Decyl Alcohol/ SMDI Copolymer* 1.00%
- Glycerin U.S.P. Natural 96% - Cognis Corp.: *Glycerin* 1.00%
- Sodium Chloride - Morton Salt: *Sodium Chloride* 0.75%

Part 5

- Botanistat P-64 - DD Chemco: *Phenoxyethanol (and) Caprylyl Glycol (and) Ethylhexylglycerin (and) Hexylene Glycol* 0.50%

Trade Name	INCI Name	Product Type
GCQP55T5S	Caprylic/Capric Triglyceride (And) Titanium Dioxide (And) Stearic Acid (And) Aluminum Hydroxide (And) Polyhydroxystearic Acid	Dispersion
TNQP55T5S	C12-15 Alkyl Benzoate (And) Titanium Dioxide (And) Stearic Acid (And) Aluminum Hydroxide (And) Polyhydroxystearic Acid	Dispersion
UV BALANCE FAS60UVP100	Titanium Dioxide (And) Cyclopentasiloxane (And) PEG/PPG-18/18 Dimethicone	Dispersion
UV BALANCE POWDER 100	Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone	Powder
UV BALANCE POWDER 100-NJE8	Titanium Dioxide (And) Alumina (And) Jojoba Esters	Powder

The TiO₂ products in the chart above comply with the conditions for Titanium Dioxide (nano) as set forth in the Annex VI to Regulation (EC) No 1223/2009.

KOBO

www.koboproducts.com