

Volatile Non-D5

UV Attenuation TiO₂ & ZnO Dispersions



There is a current trend in the market to move away from volatile cyclic silicone products, namely **Cyclopentasiloxane**. Kobo is a global leader in pigment dispersions including attenuation grade and pigmentary grade Titanium Dioxide, Zinc Oxide, Iron Oxides, and Organic Pigments. In addition to offering these pigments in cyclic silicones, several **Volatile Non-D5** options are available that have properties that are similar to cyclic silicones.



Based on many years of experience, Kobo has carefully selected carriers and dispersants that mimic the volatility of cyclic silicones. These dispersions continue to provide minimal whitening and protection from UVA/UVB light.

Carrier	INCI Name
CAP/CAQP	Coconut Alkanes
PM9	Isododecane
DM2	Dimethicone (And) Trisiloxane
DIM	Dimethicone (2 Cts.)
DMTM	Dimethicone (And) Methyl Trimethicone
MTM	Methyl Trimethicone
PM1	Isohexadecane



KLF-189B

W/Si Liquid Foundation with FADM/TTB Dispersions

Part 1

- **MTM3F40T7** - Kobo Products: *Methyl Trimethicone (And) Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone (And) Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone* 23.30%
- Xiameter® PMX-200 Silicone Fluid 5CS - Dow Corning: *Dimethicone* 10.00%
- X-22-6711D - Shin-Etsu: *Dimethicone (And) PEG/PPG-18/18 Dimethicone* 4.80%
- **FADM65UTB** - Kobo Products: *Titanium Dioxide (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate* 4.00%
- **FADM55YTB** - Kobo Products: *Iron Oxides (CI 77492) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate* 2.60%
- Lexol® PG-865 - Inolex: *Propylene Glycol Dicaprylate/Dicaprate* 2.50%
- **KOBOGUARD® MQ65TMF** - Kobo Products: *Trimethylsiloxyethyl Dimethicone (And) Methyl Trimethicone* 2.50%
- SALACOS® 99 - Ikeda: *Isononyl Isononanoate* 2.50%
- **SUMECTON SAN-P** - Nikko/Kobo Products: *Quaternium-18 Hectorite* 1.00%
- KF-6017 - Shin-Etsu: *PEG-10 Dimethicone* 1.00%
- Ethyl Alcohol E1028 - Warner Graham: *Ethyl Alcohol* 1.00%
- Dow Corning 556 Fluid - Dow Corning: *Phenyl Trimethicone* 0.75%
- **FADM55RTB** - Kobo Products: *Iron Oxides (CI 77491) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate* 0.40%
- **FADM60BTB** - Kobo Products: *Iron Oxides (CI 77499) (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Isopropyl Titanium Triisostearate (And) Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone (And) Tocopheryl Acetate* 0.25%

Part 2

- Deionized Water 37.35%
- Butylene Glycol - Ruger Chemical, Inc.: *Butylene Glycol* 2.00%
- JEECID CAP-7 - Jeen International: *Caprylyl Glycol (And) Glyceryl Laurate (And) Glyceryl Undecylenate* 1.30%
- Glycerin U.S.P. Natural 96% - Ruger Chemical: *Glycerin* 1.25%
- Sodium Chloride - Morton Salt: *Sodium Chloride* 1.00%
- Tween™ 20 - Croda: *Polysorbate 20* 0.50%

Manufacturing Procedure

1. Combine Part 1 and homogenize for 20 minutes at 5000rpm.
2. Combine Part 2 until homogeneous, and slowly add to Part 1 until fully dispersed.

Description

This lightweight elegant foundation helps perfect the appearance of skin. It provides natural coverage with a smooth and healthy look that is good for all skin types: normal, dry, combination and oily. The paraben-free formula features **MTM3F40T7**, TiO₂ dispersion in methyl trimethicone, a non-D5 volatile silicone carrier with excellent skin feel. FADM/TTB dispersions showcase the versatility of TTB treated pigments as they are easily incorporated into the silicone phase. SUMECTON SAN-P gives body and thickening to the oil/silicone phase. KOBOGUARD® MQ65TMF gives a flexible film and helps with the formula's wear.

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	Product Name	INCI Name	Active %	Primary Part. Size (nm)	Part. Size (nm)	EU Compliance	Viscosity
Titanium Dioxide	CAP50M170	Titanium Dioxide (And) Coconut Alkanes (And) Alumina (And) Hydrogen Dimethicone (And) Polyhydroxystearic Acid	39	14	125	Compliant	Pourable
	DIM2KG40TU9	Dimethicone (And) Titanium Dioxide (And) Silica (And) PEG-10 Dimethicone (And) Lauryl Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone (And) Hydrogen Dimethicone	31	14	148	Compliant	Pourable
	PM1P70T7	Titanium Dioxide (And) Isohexadecane (And) Alumina (And) Hydrogen Dimethicone (And) Polyhydroxystearic Acid	55	15	120	Compliant	Paste
	DM2F40T7	Dimethicone (And) Trisiloxane (And) Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone (And) PEG-9 Polydimethylsiloxyethyl Dimethicone	31	15	125	Compliant	Paste
	MTM3F40T7	Methyl Trimethicone (And) Titanium Dioxide (And) Alumina (And) Hydrogen Dimethicone (And) Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone	31	15	128	Compliant	Pourable
	New DIM2F650T4	Titanium Dioxide (And) Dimethicone (And) Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone (And) Alumina (And) Hydrogen Dimethicone	40	15	132	Compliant	Pourable
Zinc Oxide	CAQP60ZSI	Zinc Oxide (And) Coconut Alkanes (And) Triethoxycaprylylsilane (And) Polyhydroxystearic Acid (And) Coco-Caprylate/Caprate	58	20	133	Compliant	Pourable
	PM9QP60ZSI	Zinc Oxide (And) Isododecane (And) Polyhydroxystearic Acid (And) Triethoxycaprylylsilane	58	20	145	Compliant	Pourable
	MTM3K50XZ4	Zinc Oxide (And) Methyl Trimethicone (And) PEG-10 Dimethicone (And) Methicone	48	20	170	-	Pourable
	DM2F50XZ4	Zinc Oxide (And) Dimethicone (And) Trisiloxane (And) Methicone (And) PEG-9 Polydimethylsiloxyethyl Dimethicone	48	20	171	-	Pourable
	DMTMF50ZSI	Zinc Oxide (And) Dimethicone (And) PEG-9 Polydimethylsiloxyethyl Dimethicone (And) Triethoxycaprylylsilane	48	20	180	Compliant	Pourable

This chart was prepared to assist formulators using TiO₂ and ZnO Dispersions. 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 following information is listed:

- Active content (%)
- Primary Particle Size (nm) of the TiO₂ or ZnO pigment used
- Size of aggregates as measured by Dynamic Light Scattering - DLS size (nm) - for comparison; should not be utilized for labeling or notification purpose
- EU Compliance: These TiO₂ and ZnO comply with the conditions for Titanium Dioxide (nano) or Zinc Oxide (nano) as set forth in the Annex VI to Regulation (EC) No 1223/2009
- Viscosity

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 for additional information on this subject.

Formulation Guidelines Titanium Dioxide

Estimation of use level for SPF

10-15nm TiO₂ Dispersions

1. SPF < 20 : 2.0 - 2.5 SPF / TiO₂ %
2. SPF > 25 : 2.5 - 3.0+ SPF / TiO₂ %

Formulation Guidelines Zinc Oxide

Estimation of use level for SPF

1. PPS : 20 - 30 nm, PS < 150 nm 1.0 - 2.0 SPF / ZnO %
2. PPS : > 60 nm, PS > 200 nm 0.5 - 1.0 SPF / ZnO %

Our dispersions are often divided into two general categories:

- 1. High Solids® Dispersions:** These are usually in paste form and have a high active ZnO or TiO₂ loading and efficacy.
- 2. High Speed™ Dispersions:** These are usually pourable and easy to incorporate into a formulation. They have a narrower particle size distribution, and are highly transparent.

Patent: US 9949904B2

Method of formulating zinc oxide powder blends for balanced UVA/UVB attenuation

Patent: US 20180235855A1, WO 2007048057A3

Zinc oxide powder blends, their production and use

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Volatile Non-D5 Dispersions

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