Inorganic UV filters have been manufactured during the past forty years for use in sunscreen products. They are preferred over organic UV filters because of their physical and chemical stability, as well as their non-irritating properties. In order to optimize the protection against UV light, and to minimize the scattering of visible light, Titanium Dioxide with particle sizes less than 100nm, or “nanoparticles,” have become increasingly popular.

However, there are recent safety concerns surrounding “nanoparticles,” particularly skin penetration, risk of inhalation, eco-toxicity, and bioaccumulation in the human body. In light of perceived health risks associated with “nanoparticles,” pigment producers have been challenged to develop grades with a mean particle size greater than 100nm, while maintaining adequate UV protection and cosmetic acceptability.

Kobo offers a range of Non-Nano Titanium Dioxide dispersions, where the particle sizes are greater than 100nm when measured by light scattering sizing, according to the last Nano Guidance from Cosmetics Europe (Interpretation of the Definition of the Term “Nanomaterial” according to the EU Cosmetic Regulation 1223/2009, May 24, 2019). These dispersions have been designed to help formulators develop sunscreen products with high SPF/PFA and minimal whitening without nanoparticles.
This chart was prepared to assist formulators using TiO₂ 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 Non-Nano Dispersions listed in this flyer have been tested by light scattering method, according to the Cosmetics Europe Nano Guidance Package; Part II: Interpretation of the Definition of the Term “nanomaterial” according to the EU Cosmetic Regulation 1223/2009, published on May 24, 2019.

The following information is listed:

- **Active content (%)**
- **Primary Particle Size (nm) of the TiO₂ 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 comply with the conditions for Titanium Dioxide (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.

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**Carrier** | **Product Name** | **INCI Name** | **Active %** | **Primary Part. Size (nm)** | **DLS Size (nm)** | **EU Compliance** | **Viscosity**
---|---|---|---|---|---|---|---
**Esters/Oils** | TNP45TEL | Titanium Dioxide (And) C12-15 Alkyl Benzoate (And) Stearic Acid (And) Silica (And) Alumina (And) Polyhydroxystearic Acid | 40 | 35 | N/A | Compliant | Paste
| TNP45TELr | Titanium Dioxide (And) C12-15 Alkyl Benzoate (And) Stearic Acid (And) Silica (And) Alumina (And) Polyhydroxystearic Acid (And) Iron Oxides (CI 77491) | 40 | 35 | N/A | Compliant | Paste
**Natural Esters/Oils** | NHPP5STS | Titanium Dioxide (And) C13-15 Alkane (And) Stearic Acid (And) Aluminum Hydroxide (And) Polyhydroxystearic Acid | 44 | 15 | N/A | Compliant | Pourable
| GCPP5TJ | Titanium Dioxide (And) Caprylyl/Capric Triglyceride (And) Jojoba Esters (And) Polyhydroxystearic Acid | 51 | 35 | 139 | Compliant | Paste
**UV Boosters** | HBP45M160 | Butyloctyl Salicylate (And) Titanium Dioxide (And) Alumina (And) Stearic Acid (And) Polyhydroxystearic Acid | 36 | 17 | 192 | Compliant | Pourable
| HBP50TMD | Butyloctyl Salicylate (And) Titanium Dioxide (And) Polyhydroxystearic Acid (And) Dimethicone (And) Hydrogen Dimethicone | 47 | 35 | N/A | - | Pourable

Our dispersions are often divided into two general categories:

1. **High Solids™ Dispersions**: These are usually in paste form and have a high active TiO₂ loading and efficacy (up to 5 SPF units/ TiO₂%), which is necessary for formulating for very high SPF.
2. **High Speed™ Dispersions**: These are usually pourable and easy to incorporate into a formulation.