

Non-Nano TiO₂ & ZnO Sunscreen Technologies

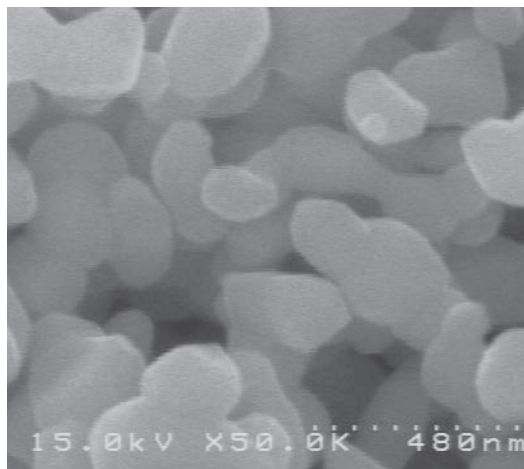
Inorganic UV filters have been manufactured during the past twenty-five years for use in sunscreen products. They are preferred over chemical sun filters because of their physical and chemical stability, as well as their non-irritating properties. In order to be transparent on the skin and effective against UV light, Titanium Dioxide and Zinc Oxide 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 particles over 100nm, while maintaining adequate UV-protection and cosmetic acceptability. Kobo offers a range of Titanium Dioxide and Zinc Oxide, where the particles are greater than 100nm when measured by generally accepted methods, including image analysis and/or light scattering sizing. These Non-Nano TiO₂ and ZnO are available coated

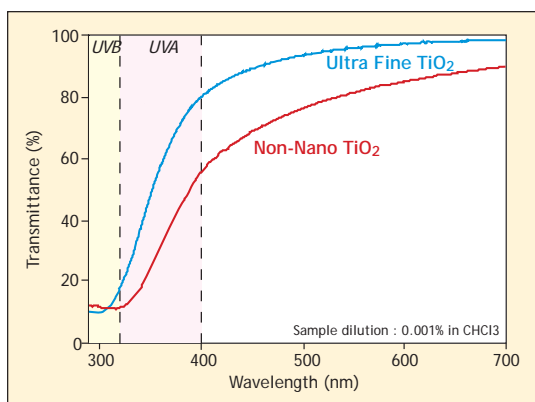
with either organic or inorganic surface treatments, and/or dispersed in various vehicles for easier use in formulation compositions. They will help formulators develop sunscreen products with high SPF/PFA and transparency without nanoparticles.

Kobo Non-Nano Patent Information:

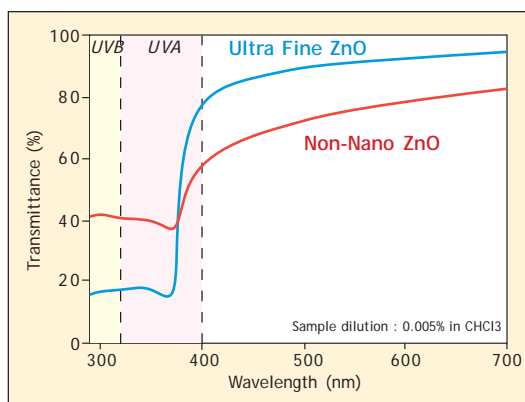
U.S. Patent Application No.: 12/331,593 for Zinc Oxide Aqueous and Non-Aqueous Dispersions including its making and use in sun care product.



TEM of Non-Nano ZnO (ZnO-C)



Comparison of the transmittance curves of a Non-Nano TiO₂ (red curve) and an ultra fine grade TiO₂ (blue curve) dispersed in the same ester.



Comparison of the transmittance curves of Non-Nano ZnO, ZnO-C (red curve) and an ultra fine grade Zinc Oxide (blue curve) in dispersions.



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
Rue Buissonniere, BP 67660
31676 Labege Cedex
France
tel +33 / (0)5.62.88.77.40
fax +33 / (0)5.62.88.77.49

Kobo Dispattek, Inc.
1-4-8
Nihombashi-bakurocho
Chuoku, Tokyo, 103-0002
Japan
tel +81-3-3663-8049
fax +81-3-3661-8848

Non-Nano TiO₂ & ZnO

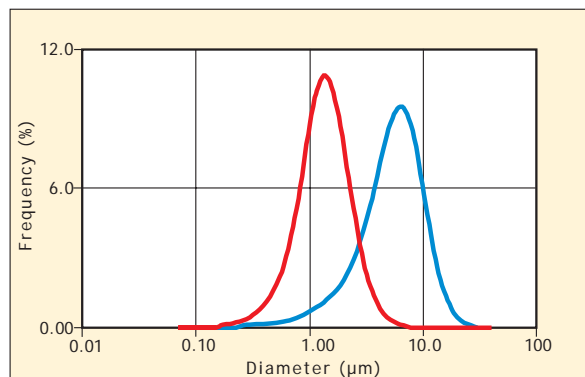
Powders

	Product Name	INCI Name	Properties	Method of (PS) Measurement
Titanium Dioxide	TiO ₂ TEL-100	Titanium Dioxide (And) Aluminum Hydroxide (And) Silica	Hydrophilic	Light Scattering Sizer
	MPT-154-NJE8	Titanium Dioxide (And) Alumina (And) Jojoba Esters	Hydrophobic	Light Scattering Sizer
	TTO-NJE8	Titanium Dioxide (And) Alumina (And) Jojoba Esters	Hydrophobic	Light Scattering Sizer
	<small>New</small> TEL-100-NJE5	Titanium Dioxide (And) Jojoba Esters (And) Silica (And) Alumina	Hydrophobic	Light Scattering Sizer
Zinc Oxide	ZnO-C	Zinc Oxide	Hydrophilic	Image Analysis
	ZnO-C-I2	Zinc Oxide (And) Isopropyl Titanium Triisostearate	Lipophilic	Image Analysis
	ZnO-C-NJE3	Zinc Oxide (And) Jojoba Esters	Hydrophobic	Image Analysis
	ZnO-C-DMC2	Zinc Oxide (And) Hydrogen Dimethicone	Hydrophobic	Image Analysis

Dispersions

	Product Name	INCI Name	Active Content	Viscosity	Method of (PS) Measurement
Titanium Dioxide	TNP45TEL	Titanium Dioxide (And) C12-15 Alkyl Benzoate (And) Stearic Acid (And) Silica (And) Alumina (And) Polyhydroxystearic Acid	41%	Paste	Light Scattering Sizer
	EMP50TEL	Titanium Dioxide (And) Ethyl Macadamiate (And) Silica (And) Alumina (And) Stearic Acid (And) Polyhydroxystearic Acid	46%	Paste	Light Scattering Sizer
	ISDMP50TEL	Titanium Dioxide (And) Dimethicone (And) Isopropyl Isostearate (And) Stearic Acid (And) Silica (And) Polyhydroxystearic Acid (And) Alumina	46%	Paste	Light Scattering Sizer
	INTNP50TEL	Titanium Dioxide (And) Isononyl Isononanoate (And) C12-15 Alkyl Benzoate (And) Silica (And) Stearic Acid (And) Polyhydroxystearic Acid (And) Alumina	46%	Paste	Light Scattering Sizer
	GCP55TEL	Titanium Dioxide (And) Caprylic/Capric Triglyceride (And) Alumina (And) Silica (And) Polyhydroxystearic Acid	51%	Paste	Light Scattering Sizer
Zinc Oxide	GC70MZCJ	Zinc Oxide (And) Caprylic/Capric Triglyceride (And) Jojoba Esters (And) Silica	68%	Paste	Image Analysis
	CMX80MZCM	Zinc Oxide (And) Cyclopentasiloxane (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Hydrogen Dimethicone	78%	Paste	Image Analysis
	<small>New</small> DM2X80MZCM	Zinc Oxide (And) Trisiloxane (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Hydrogen Dimethicone	78%	Paste	Image Analysis
	MTMX80MZCM	Zinc Oxide (And) Methyl Trimethicone (And) Dimethicone (And) PEG/PPG-18/18 Dimethicone (And) Hydrogen Dimethicone	78%	Paste	Image Analysis

Particle Size of Dispersion (TiO₂ TEL-100 in an Ester)



Particle size measurements of Non-Nano Titanium Dioxide (dispersed in polar-blue curves- or apolar-red curves- solvents) showing that all of the particles are above the 100nm limit.

Drawdown of Dispersion (TiO₂ TEL-100 in an Ester)



KOBO

www.koboproducts.com