



New Dispersion (Comply with Global Regulations)

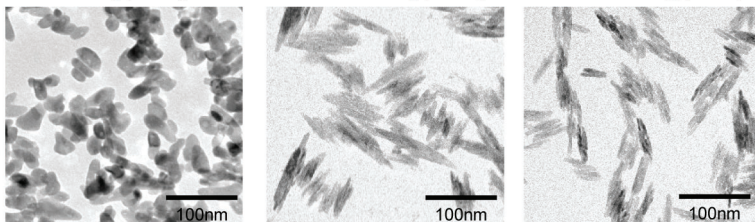
- New Cyclopentasiloxane-free dispersion which complies with global regulations^{※1}.
- High SPF and UVAPF effects can be obtained by using the newly developed 30 nm titanium dioxide.
- The paleness of new titanium dioxide will fit to the skin better, and has a good texture derived from its particle shape.

	Micro Titanium Dioxide Dispersion					
Grade	DLT-03		FLT-17		FLT-18	
Base material	New 30 nm Titanium Dioxide ^{※2}	47%	New 30 nm Titanium Dioxide ^{※2}	48%	New 30 nm Titanium Dioxide ^{※2}	56%
Dispersant	PEG-9 Polydimethylsiloxylethyl Dimethicone		Polyhydroxystearic Acid		Polyhydroxystearic Acid	
Medium	Dimethicone		C12-15 Alkyl Benzoate		Hydrogenated Polyisobutene	
Viscosity mPa·s	500-2,000 (12rpm)		500-2,000 (12rpm)		500-2,000 (12rpm)	

※1 : Ingredients that comply with European cosmetics regulations ※2 : New 30nm titanium dioxide treated with aluminum hydroxide and stearic acid

Transmission Electron Micrograph

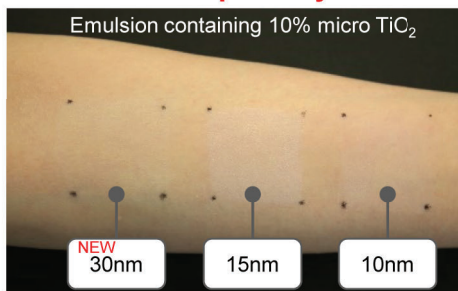
New TiO₂ (30nm)^{※4} Conventional TiO₂ (15nm)^{※5} Conventional TiO₂ (10nm)^{※5}



※4 : Feret Diameter

※5 : Specific Surface Area Diameter

Transparency



Emulsion Evaluation (Micro Titanium Dioxide)

SPF *in vitro*

	5%	7%	10%
NEW 30nm	15	24	42
15nm	15	22	32
10nm	11	15	22

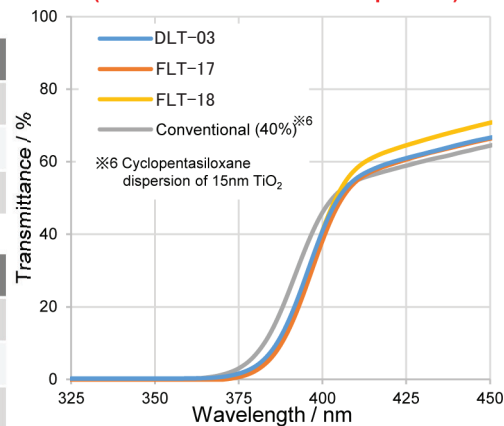
UVAPF *in vitro*

	5%	7%	10%
NEW 30nm	4	8	10
15nm	3	6	7
10nm	3	4	5

SPF Measurement Condition

Formulation : W/O emulsion
Dosage : 5%, 7%, 10%
Amount of coating : 1.3mg/cm²
Base : PMMA
Measurement : SPF Analyzer UV-2000S

Transmittance Curve (Micro Titanium Dioxide Dispersion)



Transmittance Measurement Condition

Formulation : dispersion
Film thickness : 10μm
Application method : automatic bar coater
Base : polypropylene film
Measurement : Spectrophotometer
HITACHI U-4100