

Sunscreen Dispersions

Surface Treated TiO₂ Sunscreen Dispersions

- Easy to Use, Low Viscosity Dispersions
- Free Flowing in Cosmetic Oils
- No Surfactants or Dispersants
- High Transparency

GENERAL INFORMATION

A proper dispersion is essential for optimal performance of a sunscreen product. It provides better UV protection, improved stability, and reduced whitening resulting in enhanced cosmetic appeal. Titanium dioxide is an effective UV absorber, and its physical and chemical stability differentiates this filter from organic UV absorbers. To improve dispersion and performance in formulas, TiO₂ is often treated with various inorganic and organic compounds. Many dispersions can be difficult to work with due to their lack of flow in cosmetic oils often requiring surfactants or dispersants to be properly dispersed.

The Miyoshi Group has developed a range of dispersions using our patented MiBrid® technology. These dispersions are easy to use, low viscosity and do not require the use of surfactants or dispersants.

MIYOSHI GMP SUNSCREEN TiO₂ DISPERSIONS

MiBrid Dispersion T-ID

60% Treated TiO₂ in Isododecane

MiBrid Dispersion T-MF

50% Treated TiO₂ in Methyl Trimethicone



Equipment: SH-7000/NIPPONDENSHOKU

Sample Preparation: Draw down each sample with BYK barcorder(#3) on TAC (Triacetylcellulose) film.

Measuring Wavelength: 560nm

Control: TAC (Triacetylcellulose) Film

Name	560nm TT(%)	560nm TT Ave. (%)	Data Correction(%)
TAC film	77.16	92.33	100.00
	92.22		
	92.39		
T-ID	78.91	78.81	85.36
	78.77		
	78.76		
T-MF	92.37	77.20	83.62
	77.30		
	77.14		

The above table is a measure of the transparency values of the draw down of MiBrid Dispersion T-ID and MiBrid Dispersion T-MF on TAC film with #3 barcorder.

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MiyoSHADE Lineup-Broc.-20210115-Rev. 1-E

MiyoSHADE Sunscreens

Surface Treated Physical Sunscreens

MiyoSHADE - Liquid Foundation (Pecan) USS0022

A long lasting, **transparent** liquid foundation, with an **SPF of 37 (in-vivo FDA)**, that appears natural and blends seamlessly on the skin.



	Trade Name	INCI Name	Function	Supplier	%
A	Vitamin E Acetate	Tocopheral Acetate	Anti-Oxidant	Spectrum	0.10
	DOWSIL™ 200 Fluid 20 CS	Dimethicone	Emollient	Dow Chemical	15.00
	KF-6038	Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone	Emulsifier	Shin-Etsu	6.75
	KSG-16	Dimethicone (and) Dimethicone/Vinyl Dimethicone Crosspolymer	Texture Modifier	Shin Etsu	3.00
	Lipo® IDD 99A	Isododecane	Emollient	Vantage	7.00
	ALT-RED	Iron Oxides (and) Triethoxycaprylylsilane	Pigment	Miyoshi America	1.92
	ALT-YELLOW	Iron Oxides (and) Triethoxycaprylylsilane	Pigment	Miyoshi America	4.57
	ALT-BLACK	Iron Oxides (and) Triethoxycaprylylsilane	Pigment	Miyoshi America	1.19
	MiyoSHADE T Clear	Titanium Dioxide (and) Aluminum Hydroxide (and) Stearic Acid (and) Dimethicone	Active (UV)	Miyoshi America	13.00
	SA-SB-300 (7%)	Silica (and) Dimethicone	Texture Modifier	Miyoshi America	1.00
B	Water	Water	-	Shin-Etsu	31.46
	Biobenefit	Artichoke [Cynara Scolymus (Artichoke) Leaf Extract, Water, BG]	Active	Miyoshi America	1.00
	PrincessCare	Mountain Geranium [Geranium Robertianum Extract, Water, BG]Cyclopentasiloxane	Active	Miyoshi America	1.00
	CUREPASSION	Passionflower [Passiflora Edulis Fruit Extract, Water, BG]	Active	Miyoshi America	1.00
	Biocelect CHAMOMILLA BD	Matricaria [Chamomilla Recutita (Matricaria) Flower Extract, Water, BG]	Active	Miyoshi America	1.00
	Actigum™ CS 11	Sclerotium gum	Viscosity Modifier	Cargill	0.50
	RonaCare® Potassium Hydroxide 30% Solution	Water (and) Potassium Hydroxide	pH Adjuster	EMD	0.01
	Xalifin® 15	PEG-8 C12-C20 Alkyl Ester	Emulsifier	Vevey Europe	5.00
	Spectrastat™ G2 Natural MB	Caprylhydroxamic Acid (and) Glycerol Caprylate (and) Glycerin	Preservative	INOLEX	1.00
	PHOENOXOL® L-10	Laureth-10	Emulsifier	Phoenix Chemical	4.50
	Total				100.00

PROCEDURE:

1. Weigh phase A in a beaker and begin homogenizing at 5000 rpm.
2. In a separate beaker, weigh the water from phase B and begin heating to 65°C.
3. Once temperature is reached, add the Xalifin-15 from phase B and begin mixing with a propeller mixer (400 to 500 rpm) for 5-10 minutes, until dissolved.
4. Then add the Actigum™ CS 11 to phase B. Continue mixing for an additional 10 minutes until gum is dissolved.
5. Add the remaining ingredients from phase B and continue mixing for 5 minutes.
6. Remove Phase B from mixing and slowly add it to Phase A. Continue homogenizing. Once incorporated, continue mixing for 10 minutes.
7. Cool and package into desired packaging.

MiBrid® Dispersion T-ID Sunscreen W/O Lotion USS0023

A non-greasy water in oil sunscreen lotion that provides uniform coverage on your skin with a nice glossy effect. **SPF 44.0 (in-vivo FDA)**.



	Trade Name	INCI Name	Function	Supplier	%
A	MiBrid Dispersion T-ID	Isododecane (and) Titanium Dioxide (and) Dimethicone (and) Aluminum Hydroxide (and) Stearic Acid	Active (UV)	Miyoshi America	25.00
	Fancol ID	Isododecane	Emollient	Elementis	26.00
	Neolight 100P	Isodecyl Neopentanoate	Emollient	Miyoshi America	5.00
	ABIL EM 97S	Bis-PEG/PPG-14/14 Dimethicone	Emulsifier	Evonik	5.00
	KSG-16	Dimethicone/Vinyl Dimethicone Crosspolymer	Texture Modifier	Shin-Etsu	1.50
B	Emeressence 1160	Phenoxyethanol	Preservative	Cognis	1.00
	IZAYOI	Rosa Roxburghill Fruit Extract (and) Butylene Glycol (and) Water	Plant Extract	Miyoshi America	1.00
	Water	Water	-	-	1.00
	Butylene Glycol	Butylene Glycol	Moisturizer	Parchem	32.50
	Glycerin	Glycerin	Moisturizer	Parchem	2.00
	Total				100.00

PROCEDURE:

1. Mix all Phase A ingredients.
2. Mix all Phase B ingredients and confirm all ingredients have dissolved.
3. Pour Phase B into Phase A and homogenize at 3000 rpm for 5 minutes.

MiBrid® Powder TS Sunscreen Lotion USS0025

A creamy sunscreen lotion with an **SPF 50+ (in-vivo FDA)**.



	Trade Name	INCI Name	Function	Supplier	%
A	MiBrid® Powder TS	Titanium Dioxide (and) Aluminum Hydroxide (and) Dimethicone (and) Hydrogen Dimethicone	Active (UV)	Miyoshi America	20.00
	PELEMOL® D5R-V	Propanediol Dicaprylate/Caprates (and) Disostearyl Malate	Emollient	Phoenix Chemical	26.00
	PELEMOL® EC	Ethyl Canolate	Emollient	Phoenix Chemical	7.00
	KF-6028	PEG-9 Polydimethylsiloxyethyl Dimethicone	Emulsifier	Shin-Etsu	1.00
	PECOSIL® G-600	Isododecane (and) Vinyl Dimethicone/Lauryl Dimethicone Crosspolymer (and) Dimethicone (and) Lauryl Dimethicone	Texture Modifier	Phoenix Chemical	4.30
	BENTONE GEL® ISD V	Isododecane (and) Disteardimonium Hectorite (and) Propylene Carbonate	Viscosity Modifier	Elementis	4.00
	KSG-16	Dimethicone/Vinyl Dimethicone Crosspolymer	Texture Modifier	Shin Etsu	1.50
	KSP-100	Vinyl Dimethicone/Methicone Silsesquioxane Crosspolymer	Texture Modifier	Shin Etsu	2.00
	MiyoFEEL SXI-L	Mica (and) Silica (and) Hydrogenated Lecithin (and) Calcium Chloride	Texture Modifier	Miyoshi America	2.00
	B	Lexgard® OE 90	Caprylyl Glycol (and) Ethylhexylglycerin	Preservative	INOLEX
Water		-	-	-	25.20
HAISUGARCANE BG		1,3 Butylene Glycol	Moisturizer	Miyoshi America	4.00
Glycerine 99.7%		Glycerin	Moisturizer	Acme Hardesty Col	2.00
Sodium Chloride Powder, USP		Sodium Chloride	Viscosity Modifier	Spectrum Chemical	0.30
	Total				100.00

PROCEDURE:

1. Mix phase A with a propeller mixer @ 500 rpm and heat to 65°C.
2. Remove from heat and mix Phase B into Phase A and begin homogenizing at 4500 rpm for 5 to 10 minutes.
3. Add Phase C to a beaker and mix until Sodium Chloride is dissolved.
4. Once Phase C is dissolved, add to Phase A & B slowly and continue homogenizing @ 4500 rpm for 5 to 10 minutes.
5. Cool and package into desired containers.

MiBrid® Dispersion T-MF Sunscreen Lotion USS0024

A light water in oil sunscreen lotion that dries quickly and leaves your skin deeply moisturized. **SPF 48.6 (in-vivo FDA)**.



	Trade Name	INCI Name	Function	Supplier	%
A	MiBrid Dispersion T-MF	Methyl Trimethicone (and) Titanium Dioxide (and) Dimethicone (and) Aluminum Hydroxide (and) Stearic Acid	Active (UV)	Miyoshi America	20.00
	TMF 1.5	Methyl Trimethicone	Emollient	Shin-Etsu	28.00
	Neolight 100P	Isodecyl Neopentanoate	Emollient	Miyoshi America	7.00
	KF-6028	PEG-9 Polymethylsiloxyethyl Dimethicone	Emulsifier	Shin-Etsu	1.00
	Parso® MCX	Ethylhexyl Methoxycinnamate	Active (UV)	DSM	4.00
	ABIL EM 97S	Bis-PEG/PPG-14/14 Dimethicone	Emulsifier	Evonik	4.00
	KSG-16	Dimethicone/Vinyl Dimethicone Crosspolymer	Texture Modifier	Shin-Etsu	1.80
	GRANSIL PSQ	Vinyl Dimethicone/Methicone Silsesquioxane Crosspolymer	Texture Modifier	Grant	2.00
	Emeressence 1160	Phenoxyethanol	Preservative	Cognis	0.30
	IZAYOI	Rosa Roxburghill Fruit Extract (and) Butylene Glycol (and) Water	Plant Extract	Miyoshi America	1.00
B	Water	-	-	-	24.60
	Butylene Glycol	Butylene Glycol	Moisturizer	Parchem	4.00
	Glycerin	Glycerin	Moisturizer	Parchem	2.00
	Sodium Chloride	Sodium Chloride	-	-	0.30
		Total			

PROCEDURE:

1. Mix all Phase A ingredients.
2. Mix all Phase B ingredients and confirm all ingredients have dissolved.
3. Pour Phase B into Phase A and homogenize at 3000 rpm for 5 minutes.

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