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Z-COTE® Zinc Oxide Formulation Concepts

Spray-It! UV Protection
(Theoretical SPF 30)

Cover-it! UV Protection Tinted
Moisturizer (Theoretical SPF 20)





Z-COTE® Zinc Oxide Formulation Concepts

With the latest regulatory proposed changes in the US, there is more focus on formulations containing zinc oxide. BASF developed two new concepts that demonstrate the application of **Z-COTE® zinc oxide** for broad spectrum UV protection in both a spray and tinted moisturizer for everyday wear.

Z-COTE® zinc oxides give formulators a choice of formats to optimize performance according to their formulation needs. They are available in powders, pourable dispersion, nano, non-nano, coated and uncoated forms.



Spray-It! ZnO Moisturizing UV Protection(Theoretical SPF 30)

UV-US-19-34968-111

A luxurious non-clogging spray that applies quickly and evenly with a non-greasy, silky after-feel. Rubs on quickly and demonstrates low whitening during application. Leaves little to no whitening after application. Contains the following NPA certified natural ingredients: Z-COTE® Zinc Oxide broad spectrum UV filter, Cetiol® Ultimate, and Myritol® 312 and Myritol® 331 natural emollients.

Phase	Ingredients	INCI	% wt.	Function
A	Z-COTE®	Zinc Oxide	20.0	Broad spectrum UV filter
	Cetiol® Ultimate	Undecane (and) Tridecane	16.0	Emollient
	Myritol® 312	Caprylic/Capric Triglyceride	10.5	Emollient
	Myritol® 331	Cocoglycerides	3.0	Emollient
	Pelemol PHS-8 (Phoenix Chemicals)	Polyhydroxysteraric Acid	0.5	Structurant
B	Propellant A46 (Aeropres Corporation)	Propane/Isobutane	50.0	Propellant

Specifications

Appearance

Fine white mist

Shake before use

Spray-It! ZnO UV Protection (Theoretical SPF 30)

UV-US-19-34968-110

A non-clogging highly emollient spray that applies quickly and evenly on skin. This formula has low-whitening with excellent slip for easy rub-on. Contains low-whitening Z-COTE® HP1 X Zinc Oxide broad spectrum UV filter, and Cetiol® Ultimate natural emollient.

Phase	Ingredients	INCI	% wt.	Function
A	Z-COTE® HP1 X	Zinc Oxide Triethoxycaprylylsilane	20.0	Broad spectrum UV filter
	Cetiol® Ultimate	Undecane (and) Tridecane	16.0	Emollient
	Luvitol® Lite EM	Hydrogenated Polyisobutene	10.5	Emollient
	Xiameter PMX-200 Silicone Fluid 5CS (Dow Corning)	Dimethicone	3.0	Emollient
	Pelemol PHS-8 (Phoenix Chemicals)	Polyhydroxysteraric Acid	0.5	Structurant
B	Propellant A46 (Aeropres Corporation)	Propane/Isobutane	50.0	Propellant

Specifications

Appearance

Fine white mist

Shake before use

(Aerosol components courtesy of Aptar)

Cover-it! ZnO Tinted Moisturizer (Theoretical SPF 20)

UV-US-19-31208-98

An everyday tinted moisturizer with broad-spectrum UV protection featuring Z-COTE® HP1 zinc oxide. Imparts a highly emollient, smooth application and provides a cushiony, silky after feel. Great for anytime wear! Additionally, Replexium® BC10091 helps to improve the appearance of aged skin. Great for on-the-go!

Phase	Ingredients	INCI	% wt.	Function
A	Water, demineralized	Water	39.05	
	Sodium Chloride	Sodium Chloride	0.50	Stabilizer
	Magnesium Sulfate	Magnesium Sulfate	0.10	Stabilizer
	Sodium Benzoate	Sodium Benzoate	0.20	Preservative
	1,3-Butanediol	Butylene Glycol	6.00	Humectant
B	Water, demin.	Water	5.00	
	Replexium® BC10091	Water (and) Dimethyl Isosorbide (and) Polysorbate 20 (and) Acetyl Tetrapeptide-11 (and) Acetyl Tetrapeptide-9	1.00	Bioactive

1. Combine the ingredients of Phase A in order with stirring. Heat gently, to about 45-50 C.
2. In a separate beaker, add Replexium® to Deionized Water with stirring until dissolved. Just before emulsification, add B to A.
3. Combine the ingredients of Phase C in order with stirring in separate beaker. Heat gently until solids melt, about 45-50 C.

Phase	Ingredients	INCI	% wt.	Function
C	Pelemol PHS-8 (Phoenix Chemical)	Polyhydroxystearic Acid	0.10	Structurant
	Dehymuls® PGPH	Polyglyceryl-2 Dipolyhydroxystearate	3.00	Emulsifier (W/O)
	Lameform® TGI	Polyglyceryl-3 Diisostearate	2.00	Emulsifier (W/O)
	Cetiol® Ultimate	Undecane (and) Tridecane	12.00	Emollient
	Hydrolite 8 (Symrise)	Caprylyl Glycol	0.50	Auxiliary
D	Z-COTE® HP1	Zinc Oxide (nano) (and) Triethoxycaprylylsilane	8.00	Broad spectrum UV filter
	UV Cut TiO ₂ -60-VL	Titanium Dioxide (and) Coconut Alkanes (and) Stearic Acid (and) Polyhydroxystearic Acid (and)(Alumina (and) Coco-Caprylate/Caprate	8.00	Broad spectrum UV filter
	MM 4812 (Color Techniques)	Titanium Dioxide, Magnesium Myrstate	1.00	Colorant
	MM 4131 (Color Techniques)	Iron Oxides, Magnesium Myrstate	0.75	Colorant
	MM 4206 (Color Techniques)	Iron Oxides, Magnesium Myrstate	0.15	Colorant
	MM 4403 (Color Techniques)	Iron Oxides, Magnesium Myrstate	0.05	Colorant
F	MSS-500 W (Kobo Products)	Silica	0.60	Skin feel modifier
G	Bentone Gel ISD V (Elementis)	Isododecane, Disteardimonium, Hectorite, Propylene Carbonate	12.00	Rheology modifier

4. Add Phase D and E ingredients in order to Phase C with stirring until wet. Homogenize until no undispersed color remains.
5. Add Phase F with moderate homogenization until thoroughly dispersed, at least 15 minutes.
6. Add Phase G with moderate homogenization until thoroughly dispersed, at least 15 minutes.
7. Slowly add phase A/B to oil/pigment phase. Homogenize for 5 minutes until uniform. Cool batch to 30 C and drop.

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