

# FORMULATION example

## US-S96-13-99 Mineral Sunscreen in vivo SPF 50+ Broad Spectrum in vivo SPF 30 Water Resistant 80 min, Broad Spectrum

Ingredients	INCI (US)	[%]
<b>A</b>		
<b>Eusolex® T-2000</b>	(1) TITANIUM DIOXIDE (AND) ALUMINA (AND) SIMETHICONE	<b>4.00</b>
<b>RonaCare® Ectoin</b>	(1) ECTOIN	<b>0.50</b>
Jeechem Sodium Stearate C1	(2) SODIUM STEARATE	0.50
Glycerol, anhydrous	(1) GLYCERIN	3.00
Water, demineralized	WATER	ad 100
<b>B</b>		
<b>Eusolex® T-2000</b>	(1) TITANIUM DIOXIDE (AND) ALUMINA (AND) SIMETHICONE	<b>4.00</b>
Zano® 10	(3) ZINC OXIDE	8.50
<b>RonaCare® AP</b>	(1) BIS-ETHYLHEXYL HYDROXYDIMETHOXY BENZYL MALONATE	<b>1.00</b>
Span 120-LQ-(MH)	(4) SORBITAN ISOSTEARATE	0.75
COSMACOL EBI	(5) C12-15 ALKYL BENZOATE	6.50
White Beeswax Pastilles	(6) BEESWAX	1.00
Miglyol 840 Gel B	(5) PROPYLENE CARBONATE (AND) STEARALKONIUM HECTORITE (AND) PROPYLENE GLYCOL DICAPRYLATE/DICAPRATE	7.00
Miglyol 812N	(5) CAPRYLIC/CAPRIC GLYCERIDES	6.00
Softisan 649	(5) BIS-DIGLYCERYL POLYACYLADIPATE-2	5.00
Arlamol HD	(4) ISOHEXADECANE	5.00
<b>C</b>		
Preservatives	PRESERVATIVES	q.s.

### Procedure:

Combine the ingredients of phase A and phase B separately, and heat to 75-80°C. Add phase A into phase B while stirring, and homogenize until uniform. Cool to 40°C. Add phase C ingredients, one ingredient at a time to phase B/A while stirring. Homogenize and cool down to RT.

### Notes:

Appearance: An off-white cream (W/O)

Brookfield Viscometer RVT, Helipath Spindle D, 10 rpm = 36,000 cps

in vivo SPF (5 subjects) = 61.6, in vivo SPF (after 80 min water immersion, 5 subjects) = 30.3

In-vitro critical wavelength (FDA 2011) : 372 nm = 'Broad Spectrum'

### Suppliers:

(1) Merck KGaA, Darmstadt, Germany / EMD Performance Materials

(3) Ultra Chemical Inc

(5) Sasol Germany GmbH

(2) Jeen International Corporation

(4) Croda

(6) Strahl & Pitsch

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