

# FORMULATION example

## US-S88-13-74 Mineral Sunscreen Broad Spectrum, in vitro SPF 77.5

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>
<b>Eusolex® T-EASY</b>	(1) TITANIUM DIOXIDE (AND) SILICA (AND) CETYL PHOSPHATE	<b>6.00</b>
<b>RonaCare® AP</b>	(1) BIS-ETHYLHEXYL HYDROXYDIMETHOXY BENZYL MALONATE	<b>1.00</b>
<b>Oxynex® ST Liquid</b>	(1) DIETHYLHEXYL SYRINGYLIDENE MALONATE (AND) CAPRYLIC/CAPRIC TRIGLYCERIDE	<b>0.50</b>
Span 120-LQ-(MH)	(3) SORBITAN ISOSTEARATE	0.75
Protachem TN	(4) C12-15 ALKYL BENZOATE	6.50
White Beeswax Pastilles	(5) BEESWAX	1.00
Miglyol 840 Gel B	(6) PROPYLENE CARBONATE (AND) STEARALKONIUM HECTORITE (AND) PROPYLENE GLYCOL DICAPRYLATE/DICAPRATE	7.00
Miglyol 812	(6) CAPRYLIC/CAPRIC GLYCERIDES	6.00
Softisan 649	(6) BIS-DIGLYCERYL POLYACYLADIPATE-2	5.00
Arlamol HD	(3) ISOHEXADECANE	5.00
<b>C</b>		
KSG-15	(7) CYCLOPENTASILOXANE (AND) DIMETHICONE/VINYL DIMETHICONE CROSSPOLYMER	2.00
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 = 120,000 cps  
 In vitro SPF = 77.5  
 In-vitro critical wavelength (FDA 2011) : 371.47 nm = 'Broad Spectrum'

### Suppliers:

# FORMULATION example

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

(3) Croda

(5) Strahl & Pitsch

(7) Shin Etsu Silicones

(2) Jeen International Corporation

(4) Protameen

(6) Sasol Germany GmbH

Products are warranted to meet the specifications set forth on their label/packaging and/or certificate of analysis at the time of shipment or for the expressly stated duration. EMD provides information and advice on application technologies and relevant regulations based upon its current knowledge and opinion. EMD MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE REGARDING OUR PRODUCTS, THEIR APPLICATION OR ANY INFORMATION PROVIDED IN CONNECTION THEREWITH. EMD shall not in any event be liable for incidental, consequential, indirect, exemplary or special damages of any kind resulting from any use or failure of the products. Customer is responsible for and must independently determine the suitability of EMD's products for its products, intended use and processes. The foregoing information and suggestions are also provided without warranty of non-infringement as to intellectual property rights of third parties and shall not be construed as any inducement to infringe the rights of third parties. Customer shall be responsible for obtaining any applicable third party intellectual property licenses. All sales are subject to EMD's complete Terms and Conditions of Sale. Prices are subject to change without notice. EMD reserves the right to discontinue products without prior notice. EMD, EMD Performance Materials, the vibrant M, Colorona, Timiron, Xirona, RonaFlair, Ronastar, Candurin, Eusolex, Pardeck, OxyneX, RonaCare, IR3535, UV-Pearls, ASCIII, Luremin and Emblicain are trademarks of Merck KGaA, Darmstadt, Germany. All other trademarks pertain to their proprietors.