



# Formulation

Name	<b>SUNSCREEN LOTION WITH STEPANQUAT® Soleil</b>		
No.	1469		
Description	STEPANQUAT® Soleil acts as a SPF booster in this sunscreen formulation. STEPANQUAT® Soleil also helps the uniform distribution of inorganic UV filters and provides good after-feel.		
Formulation	<b>INGREDIENTS:</b>	<u>% by Weight</u>	<u>Functionality</u>
	=== Phase 1 ===		
	Olivem 1000 (Hallstar) Cetearyl Olivat, Sorbitan Olivat	5.00	Emulsifier
	ERCAMULS LF 65 V/FD (ErcaWilmar)**	1.00	Co-emulsifier
	WECOBEE® S	2.00	Emollient
	=== Phase 2 ===		
	NEOBEE® M-20	10.00	Emollient
	ERCAREL AB (ErcaWilmar) C12-15 Alkyl Benzoate	8.00	Emollient
	STEPANQUAT® Soleil	1.50	Sunscreen Agent
	Parsol TX (DSM) Titanium Dioxide, Silica, Dimethicone	10.00	Sunscreen Agent
	Parsol ZX (DSM) Zinc Oxide, Triethoxycaprylsilane	2.00	Sunscreen Agent
	=== Phase 3 ===		
	Xanthan Gum (Merck)	0.15	Rheology Modifier
	Glycerin (Sinopharm)	4.50	Humectant
	Deionized Water	q.s. to 100	Carrier
	=== Phase 4 ===		
	Phenoxyethanol (Sinopharm)	0.30	Preservative
	Triethanolamine (Thermo Scientific), 5% Solution	q.s.	pH Adjuster
	<b>Total</b>	<b>100.00</b>	
Procedure	<ol style="list-style-type: none"> <li>1. Add ingredients from Phase 1 to vessel with mixing. Heat to 65°C-70°C (149°F-158°F) and melt.</li> <li>2. In a separate vessel, combine ingredients from Phase 2 and mix gently with spatula.</li> <li>3. Homogenize Phase 2 for 4 minutes at 5000 rpm.</li> <li>4. Add Phase 2 to Phase 1 using overhead mixing (at 500 rpm for 2 minutes) while heating the batch to 65°C-70°C (149°F-158°F).</li> <li>5. In a separate vessel, prepare Phase 3 by adding Deionized Water and Glycerin together with overhead mixing at 500 rpm.</li> <li>6. Adjust pH of Phase 3 to greater than 7.0 using the Triethanolamine, 5% solution, before adding Xanthan Gum.</li> <li>7. Once the pH is adjusted, add Xanthan Gum with overhead mixing at 500 rpm. Heat to 65°C-70°C (149°F-158°F) with mixing.</li> <li>8. Add Phase 3 into the batch with overhead mixing at 500 rpm for 2 minutes.</li> <li>9. Homogenize the batch at 5000 rpm while heating it in a water bath at 70°C (158°F) for 2 minutes.</li> <li>10. Transfer the batch to overhead mixing at 300 rpm - 500 rpm and begin to cool to 40°C (104°F).</li> <li>11. After cooling to 40°C (104°F), add Phenoxyethanol with overhead mixing and stir for 1 minute.</li> <li>12. Measure pH of batch. Adjust pH to 7.2 - 7.3 with Triethanolamine, 5% Solution.</li> </ol>		

**\*\*Note:** The INCI name for ERCAMULS LF 65 V/FD, supplied by ErcaWilmar, is Glyceryl Stearate and PEG-100 Stearate.

Physical Properties	Appearance, as is SPF pH, as is Viscosity at 25°C, cps	Opaque lotion 21.8 7.0 - 7.5 10,000 - 20,000
Storage/ Stability	3 months at 25°C 3 months at 5°C 3 months at 45°C	Stable Stable Stable
Instructions for Use	Apply as a normal lotion to the skin	
External Comment	Marketing Notes: The addition of STEPANQUAT® Soleil to the formulation increased the SPF from 12.4 (blank) to SPF 21.8. STEPANQUAT® Helia can be substituted for STEPANQUAT® Soleil at the same percent by weight for almost similar performance with SPF 25-30.	
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For Additional Assistance	For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or +33 476 505 100 (Europe). For ordering assistance, call our Account Service Department at 1-800-457-7673.	

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