



# Formulation

Name	<b>NATURALLY-DERIVED, COLOR CARE SULFATE-FREE SHAMPOO</b>	
No.	1189	
Description	This is a naturally-derived, sulfate-free, amide-free, mild, EO/PO-free prototype formulation that demonstrates excess foam volume and perceived color fade resistance, as well as equivalent conditioning properties when compared to an anti-fade market leading shampoo in salon testing using multiple coloring systems.	
Formulation	<u>INGREDIENTS:</u>	<u>% by Weight</u> <u>Functionality</u>
	Deionized water	q.s. to 100.0 Carrier
	LATHANOL® LAL Powder	6.9 Surfactant
	AMPHOSOL® HCG (or AMPHOSOL® HCG-HP)	12.9 Surfactant
	AMPHOSOL® 2CSF (or AMPHOSOL® 2CSF-AF)	7.0 Surfactant
	ALPHA-STEP® PC-48	7.8 Surfactant
	STEPAN-MILD® GCC	0.3 Viscosity Builder, Conditioning Agent
	Citric Acid	q.s. pH Adjuster
	Fragrance, Dye, & Preservative	q.s. Additives
	<b>Total</b>	<b>100.0</b>
Procedure	<ol style="list-style-type: none"> <li>1. Add Deionized Water and heat to 60°C–65°C (140°F-149°F).</li> <li>2. Add LATHANOL® LAL Powder, and mix until completely dissolved.</li> <li>3. Cool down to 42°C–45°C (107°F-113°F). Add AMPHOSOL® HCG (or AMPHOSOL® HCG-HP), AMPHOSOL® 2CSF (or AMPHOSOL® 2CSF-AF) and ALPHA-STEP® PC-48. Mix until homogeneous.</li> <li>4. Add STEPAN-MILD® GCC and mix until clear.</li> <li>5. Adjust pH with Citric Acid, if necessary.</li> <li>6. Add Fragrance, Dye, and Preservative while mixing.</li> </ol> <p>*Note: When formulating with AMPHOSOL® HCG-HP, a greater amount of Citric Acid may be needed to adjust the pH within the recommended range as noted, than when formulating with AMPHOSOL® HCG.</p>	
Physical Properties	Appearance at 25°C	Clear liquid
	Viscosity at 25°C, cps	12,000
	pH, as is	5.8–6.0
	Total actives, %	14.8
	Total solids, %	19.2
Storage/Stability	4 weeks at 5°C	Stable
	4 weeks at 25°C	Stable
	4 weeks at 45°C	Stable
	Freeze/Thaw 3 cycles	Pass
External Comment	Marketing Notes: Naturally-derived is defined as derived from biorenewable resource originating from animal, plant or marine feedstock. All Stepan surfactants used in formulations labeled as naturally-derived have a minimum of 50% biorenewable carbon content (based on Stepan's BCI calculation). BCI = 56. Total Biorenewable Carbon Index (BCI) was calculated only for the Stepan	

surfactants used in this formulation. Other ingredients were not evaluated. For further information on Stepan's BCI, visit [www.stepan.com](http://www.stepan.com). Sulfate-free is defined as not containing Alcohol sulfate or Alcohol ether sulfate as per INCI nomenclature. This definition does not include the inorganic sulfates, e.g. Sodium sulfates, used as processing aids or formed as a residual, impurity or by-product. EO/PO-free is defined as manufactured without intentionally adding or utilizing any ingredient or raw material that is known to contain Ethylene oxide or Propylene oxide. 1,4-Dioxane would not form because Ethylene oxide is not used in the manufacture of this product. Results (from the original study that was conducted) indicate that amphoteric surfactants such as Betaines, Hydroxysultaines, and Disodium propionates used in this formulation and in the original prototype formulation are interchangeable without impacting foam or color retention.

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**Stepan** 

Stepan Company  
Northfield, Illinois 60093  
Telephone (847) 446-7500

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