Name: NATURALLY-DERIVED, SULFATE-FREE CONDITIONING SHAMPOO
No.: 1094

Description: This shampoo is formulated with naturally-derived surfactants and provides good foam and conditioning properties. It is gentle on colored and treated hair.

Formulation: | INGREDIENTS: | % by Weight | Functionality |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Deionized Water</td>
<td>q.s. to 100.00</td>
<td>Carrier</td>
<td></td>
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<tr>
<td>Glycerin (Uniqema)</td>
<td>0.50</td>
<td>Humectant</td>
<td></td>
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<tr>
<td>Versene 100 (Dow Chemical) Tetrasodium EDTA</td>
<td>0.10</td>
<td>Chelating Agent</td>
<td></td>
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<tr>
<td>STEPAN-MILD® PCL</td>
<td>38.00</td>
<td>Primary Surfactant</td>
<td></td>
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<tr>
<td>AMPHOSOL® HCG (or AMPHOSOL® HCG-HP)</td>
<td>10.00</td>
<td>Secondary Surfactant</td>
<td></td>
</tr>
<tr>
<td>STEPAN-MILD® GCC</td>
<td>0.30</td>
<td>Conditioning Agent</td>
<td></td>
</tr>
<tr>
<td>HALLSTAR® EGDS (Hallstar)</td>
<td>0.50</td>
<td>Pearlescent Agent</td>
<td></td>
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<tr>
<td>DL-Panthenol (Roche) Panthenol</td>
<td>0.20</td>
<td>Additive</td>
<td></td>
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<tr>
<td>Sodium Hydroxide, 50% solution</td>
<td>q.s.</td>
<td>pH Adjuster</td>
<td></td>
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<tr>
<td>Sodium Chloride</td>
<td>q.s.</td>
<td>Viscosity Adjuster</td>
<td></td>
</tr>
<tr>
<td>Preservative, Dye and Fragrance</td>
<td>q.s.</td>
<td>Additives</td>
<td></td>
</tr>
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</table>

Total: 100.00

Procedure:
1. In a suitable vessel equipped with heating and agitation capabilities, charge Deionized Water.
2. Start heating water to 60ºC–65ºC (140ºF-149ºF).
3. Add Glycerin, Versene 100, STEPAN-MILD® PCL, AMPHOSOL® HCG (or AMPHOSOL® HCG-HP), STEPAN-MILD® GCC, and HALLSTAR® EGDS using moderate agitation. Continue heating to 60ºC–65ºC (140ºF-149ºF). Mix for at least 30 minutes until everything is completely dissolved.
5. At 40ºC (104ºF), add DL-Panthenol with continued mixing.
6. Continue cooling the batch to 25ºC (77ºF).
7. Adjust pH with Citric Acid, 50% solution or Sodium Hydroxide, 50% solution, if necessary. Adjust viscosity with Sodium Chloride, if necessary.
8. Add Preservative, Dye and Fragrance as desired.

*Note: When formulating with AMPHOSOL® HCG-HP, a greater amount of Citric Acid (50% solution) may be needed to adjust the pH within the recommended range as noted, than when formulating with AMPHOSOL® HCG.

Physical Properties:
- Appearance, as is: Pearlescent viscous liquid
- pH, as is: 5.5–6.5
- Viscosity at 25ºC (LVT #3 at 12 rpm), cps: 3,500–6,000

Storage/ Stability:
- 4 weeks at 5ºC: Stable
- 4 weeks at 25ºC: Stable
- 4 weeks at 45ºC: Stable
- Freeze/Thaw 3 cycles: Pass

Instructions for Use:
- Massage into wet hair. Lather, then rinse thoroughly. Repeat if desired. Use daily.
This shampoo is gentle enough for permed or colored hair.

Marketing Notes: Naturally-derived is defined as surfactants sourced from plant, animal or marine feedstocks. Sulfate-Free* means containing no alcohol sulfate or alcohol ether sulfate as per the INCI nomenclature. BCI = 85. Total Biorenewable Carbon Index (BCI) was calculated only for the Stepan surfactants used in this formulation. For further information on Stepan’s BCI, visit www.stepan.com.

STEPAN-MILD®
AMPHOSOL®

For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe).

For ordering assistance, call our Account Service Department at 1-800-457-7673.

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