LIQUID HAND SOAP  

**Description:** This formulation is an all-purpose liquid hand soap formulated without Diethanolamide (DEA Amide).

**Formulation INGREDIENTS:**

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deionized Water</td>
<td>q.s. to 100.0</td>
</tr>
<tr>
<td>BIO-TERGE® AS-40 (or BIO-TERGE® AS-40 HA)</td>
<td>10.00</td>
</tr>
<tr>
<td>STEPANOL® AM</td>
<td>8.74</td>
</tr>
<tr>
<td>STEPANOL® WAT</td>
<td>6.25</td>
</tr>
<tr>
<td>NINOL® M10</td>
<td>3.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase 2</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric Acid</td>
<td>q.s.</td>
</tr>
<tr>
<td>Fragrance, Dye, &amp; Preservative</td>
<td>q.s.</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>q.s.</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>q.s.</td>
</tr>
</tbody>
</table>

| Total                       | 100.0       |

**Procedure:**

1. Combine all components in Phase 1 and mix until homogeneous.
2. Adjust pH to 5.5 - 6.5 with Citric Acid.
3. Add Fragrance, Dye, and Preservative, if desired.
4. Adjust to desired viscosity with Sodium Chloride and pH with Citric Acid or Sodium Hydroxide.

*Note: When formulating with BIO-TERGE® AS-40 HA, a greater amount of Citric Acid may be needed to adjust the pH within the recommended range as noted, than when formulating with BIO-TERGE® AS-40.*

**Physical Properties**

- **Appearance as is:** Clear yellow liquid
- **pH, as is:** 5.5-6.5
- **Viscosity Profile:**
  - 0.0% Sodium Chloride, cps: 10
  - 2.0% Sodium Chloride, cps: 430
  - 3.0% Sodium Chloride, cps: 2300

**Storage/Stability**

- **2 weeks at 50ºC:** Stable
- **Freeze/Thaw, 3 cycles:** Pass

**Instructions for Use**

- Apply to wet skin, lather and rinse.

01/19/17: Stability testing information noted above was for this formulation containing BIO-TERGE® AS-40. BIO-TERGE® AS-40 HA, an excess alkalinity preserved surfactant of the same chemistry, can be substituted into this formulation. Based on chemistry, Personal Care R&D does not anticipate that the stability or performance of the formulation will be altered by using BIO-TERGE® AS-40 HA, however it should be noted that a greater amount of Citric Acid may be needed to reach the pH target (compared to the amount needed when formulating with BIO-TERGE® AS-40).

**External Marketing Notes:** This formulation does not contain Cocamide DEA or other DEA Amides.
Comment

STEPANOL® WAT-K may be a potential substitute for STEPANOL® WAT in this formulation. It should be noted that stability testing using this STEPANOL® WAT-K has not been completed for this formulation. The substitution may yield slightly different physical properties.

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STEPANOL®
NINOL®

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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