Sulfate-Free Acne Cleanser

This sulfate-free salicylic acid facial wash with nourishing beads demonstrates the cationic compatibility, thickening, suspension and clarity provided by Carbopol® * Aqua CC Polymer in a low pH application. This formula presents a gentle cleanser with a proven acne-fighting ingredient that treats blemishes and helps prevent breakouts, without irritating skin.

<table>
<thead>
<tr>
<th>INCI Name, Trade Name</th>
<th>Weight %</th>
<th>Function</th>
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</thead>
<tbody>
<tr>
<td>A. 1. Deionized Water</td>
<td>30.74</td>
<td>Diluent</td>
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</table>
| 2. Polyacrylate-1 Crosspolymer (20%), 
  Carbopol® * Aqua CC Polymer | 6.96 | Rheology Modifier |
| 3. Sodium C14-C16 Olefin Sulfonate (40%), 
  Bio-Terge® AS-40 | 17.50 | Surfactant |
| 4. Citric Acid (50%) | 1.00 | Acidifier |
| B. 5. Deionized Water | 10.00 | Diluent |
| 6. Sodium C14-C16 Olefin Sulfonate (40%), 
  Bio-Terge® AS-40 | 17.50 | Surfactant |
| 7. Salicylic Acid | 2.00 | Anti-Acne Agent |
| C. 8. Cocamidopropyl Betaine (35%), 
  Chembetaine™* CAD Surfactant | 10.00 | Surfactant |
| 9. Glycerin | 1.00 | Humectant |
| 10. PEG/PPG-8/3 Laurate, 
  Hydramol™* PGPL Ester | 1.00 | Moisturizer |
| 11. Tocopherol Acetate, 
  Vitamin E Acetate | 0.10 | Antioxidant |
| 12. Melaleuca Alternifolia (Tea Tree) Leaf Oil, Propylene Glycol, 
  Herbasol® Tea Tree Extract PG | 0.10 | Botanical Extract |
| 13. Hamamelis Virginiana (Witch Hazel) Extract, Propylene Glycol, 
  Herbasol® Witch Hazel Extract PG Decolorized | 0.10 | Botanical Extract |
| 14. FD&C Green No. 3 (0.1%) | 0.50 | Dye |
| 15. Tocopherol Acetate, Lactose, Cellulose, Hydroxypropyl 
  Methylcellulose, (and) Iron Oxide 
  Unispheres® YE-501 | 1.00 | Vitamin |
| D. 16. Citric Acid (50%) | 0.50 | Acidifier ** |

** q.s. to pH 4.0

Procedure:
1. Combine PART A ingredients in order. Pre-neutralize with citric acid. Mix until uniform.
2. In a separate vessel, combine PART B ingredients. Mix salicylic acid until completely dissolved.
3. Add PART B to PART A. Mix until uniform.
4. Add PART C ingredients to PART A in order. Mix until uniform.
5. Adjust final pH to pH 4.0 with citric acid.
Product Properties:

pH 3.9 – 4.1
Viscosity (mPa·s)*** 3,500 – 6,000
Yield Value (dyn/cm²) 150 - 250
Turbidity (NTU)**** 22 - 26
Stability: Passed 3 months @ 45°C, 5 cycles freeze/thaw

Carbopol® * Aqua CC Polymer Actives (%) 1.4
Surfactant Actives (%) 17.5

*** Brookfield RVT @ 20 rpm, 25°C, #5 spindle, measured after 24 hours
**** HF Scientific, Inc., Micro 100 Turbidimeter

Supplier References:
Noveon, Inc. (2, 8, 10)
Stepan (3, 6)
Aldrich (4, 16)
Fisher (7)
Acme-Hardesty or Protameen (9)
BASF (11)
Cosmetochem (12, 13)
Quantum Colours (14)
Induchem (15)

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