

Carbopol[®]* Aqua SF-1 Polymer Salicylic Acid Facial Scrub Formulation

This salicylic acid facial scrub with jojoba beads demonstrates the compatibility, thickening, and suspending properties provided by **Carbopol[®] Aqua SF-1 Polymer** in a very low pH formula.

Ingredient by INCI Name	Weight, %	Function	Trade Name (Supplier)
PART A			
1. Deionized Water	35.45	Diluent	Carbopol® Aqua SF-1 Polymer (Noveon, Inc.) Bioterge AS-40 (Stepan)
2. Acrylates Copolymer (30%)	5.00	Rheology Modifier	
3. Sodium C14-16 Olefin Sulfonate (40%)	15.00	Primary Surfactant	
4. Sodium Hydroxide (18%)	0.75 (q.s. to pH 6.5)	Neutralizer	
5. Citric Acid (50%)	0.50 (q.s. to pH 5.3)	pH Adjuster	
PART B			
6. Deionized Water	15.00	Diluent	Bioterge AS-40 (Stepan)
7. Sodium C14-16 Olefin Sulfonate (40%)	10.00	Primary Surfactant	
8. Glycerin	2.00	Moisturizer/ Solubilizer	
9. Salicylic Acid (USP)	2.00	Active	
PART C			
10. Cocamidopropyl betaine (35%)	10.00	Secondary Surfactant	Velvetex BA-35 (Cognis)
11. Potassium C12-13 Phosphate (40%)	2.00	Secondary Surfactant	Arlatone MAP 230-K40 (Uniqema)
12. FD&C Red No. 33 (0.1%)	0.10	Dye	(Noveon Hilton Davis)
13. FD&C Yellow No. 6 (0.1%)	0.20	Dye	(Noveon Hilton Davis)
14. Jojoba Beads	1.00	Exfoliator	Florabeads® 28/60, “Tequilla Sunrise” (Floratech)
15. Jojoba Beads	1.00	Exfoliator	Florabeads® 40/60, “White” (Floratech)

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(OVER →)

PREPARATION PROCEDURE:

1. PART A: Add **Carbopol® Aqua SF-1 Polymer** to deionized water.
2. Add the AOS surfactant with gentle mixing.
3. Neutralize with sodium hydroxide (18%) to pH 6.5.
4. Reduce pH to 5.2 - 5.4 with citric acid solution.
5. PART B: In a side vessel, combine PART B ingredients in order. SLOWLY add PART B to PART A with mixing. (Note: Adding PART B too quickly may result in polymer precipitation.)
6. PART C: Add ingredients to batch in order.

PROPERTIES*:

Appearance	Translucent, viscous liquid with suspended beads
pH	3.8 - 4.0
Viscosity, (mPa·s)**	5,500 - 10,000
Yield Value (dyne/cm ²)	230 - 320
Turbidity (NTU)	150 - 190
Stability	Passed 3 months @ 45°C Passed 5 cycles freeze / thaw
Carbopol® Aqua SF-1	
Polymer Actives (%)	1.5
Surfactant Actives (%)	14.3

* Measured after 24 hours

** Brookfield RVT @ 20 rpm, #4 spindle



Carbopol® Aqua SF-1 liquid polymer provides the following unique performance benefits:

- ❖ synergistic suspending, stabilizing, and thickening with surfactants and salts
- ❖ increased suspending, stabilizing, and thickening properties at low pH
- ❖ co-emulsification and stabilization of silicones
- ❖ formulation of very clear products containing high levels of surfactants
- ❖ enhancement of pearlescent formulations