

Spray gel composition with Eastman AQ™ 48 ultra polymer

Shear-thinning, spray gel composition

This spray gel composition demonstrates the use of Eastman AQ™ 48 polymer as a film-former and hair fixative with Laponite™ XLG silicate to make a translucent gel. The gel holds air bubbles upon standing, but is extremely shear-thinning, providing excellent spray-out from a standard pump-spray container.

Part A	wt %
Deionized or tap water	60.2
Laponite™ XLG Sodium Magnesium Silicate ¹	2.8
Part B	
Water	29.4
Glycerin	3.0
Eastman AQ™ 48 Ultra Polyester-5	4.0
Disodium EDTA	0.1
Part C	
Preservative	q.s.
Part D	
Citric Acid, 20% in water	q.s.

¹Rockwood Additives, Southern Clay Products, Inc.

Part A

- Stir water rapidly while sprinkling in Laponite™ XLG.
- Mix until clear, 20 to 30 minutes.

Part B

- Combine water and glycerin.
- Heat while stirring until temperature reaches about 45°C.
- Add Eastman AQ™ 48 pellets and stir without further heating until dispersed.
- Add disodium EDTA and stir until dissolved.
- Cool to room temperature.

Slowly add Part B to Part A and mix until homogenous.

Part C

- Add Part C to combined Parts A and B and stir until thoroughly mixed.

Part D

- While stirring combined Parts A, B and C, slowly add citric acid to adjust pH to 4.2. (Note: pH will drift up to about 7.0 over 1 to 2 days.)

Directions for hair styling demonstration: Spray onto short, damp hair and arrange as desired.

The shear-thinning behavior of this spray-gel is apparent from the viscosity measured at various spindle speeds. (Brookfield LV spindle #4)

RPM	Approximate Viscosity (cP)
0.6	90,000
1.5	45,000
3.0	24,000
6.0	13,000
12.0	7,000

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