



# CARBOPOL® Fusion S-20 polymer

Sustainable down to a science



**Excellent clarity, thickening and suspension capabilities**

**Suitable for sulfate and sulfate-free chassis**

**Inherently biodegradable (OECD 301B)**

Carbopol® Fusion S-20 polymer is an inherently biodegradable rheology modifier that provides similar suspension, clarity and viscosity modification as Acrylates Copolymer technologies in sulfated and sulfate-free rinse-off systems.

Suitable for skin cleansing and hair care applications.

**APPEARANCE:** Liquid.

**INGREDIENT NAME:** Starch Acetate/Adipate (and) Citric Acid.

**USE LEVEL:**

- 9%- 16% as supplied as primary rheology modifier
- >5 % as supplied as secondary rheology modifier
- 1.0%-3.5% Active

**SUSTAINABILITY:**



Natural Origin Content (NOC): 85% (ISO 16128)  
Inherently biodegradable (OECD 301B)  
Process addresses all 12 Principles of Green Chemistry  
Free from GMO/EO/PEGs  
Low carbon footprint  
Contains starch, a renewable resource with good traceability

You know the destination  
**WE'LL HELP YOU REACH IT SUSTAINABLY**

## Features and Benefits:

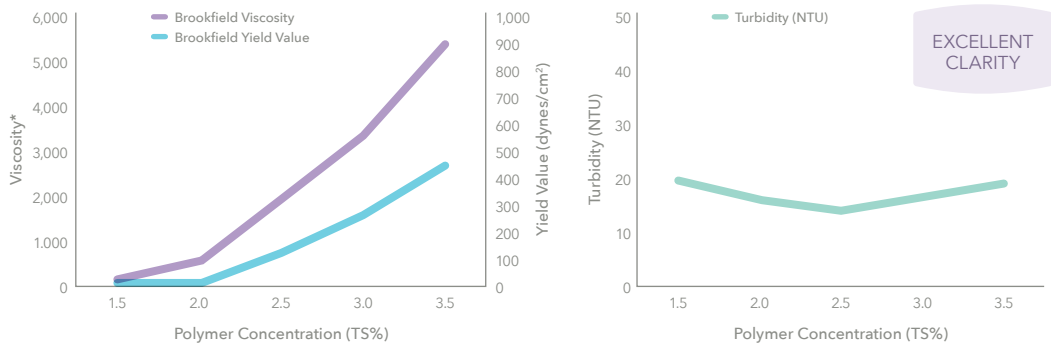
- Similar performance to Carbopol® Aqua SF polymers
- Efficacy across a wide pH range
- Smooth honey-like flow
- Provides a light, soft sensory on skin
- Silicone and ZPT suspension at low use level
- Good foam volume and creamy foam texture



# PERFORMANCE IN SULFATED SYSTEMS

## TRADITIONAL SULFATED CHASSIS

11.2% active Sodium Laureth Sulfate, 2.3% TS Cocamidopropyl Betaine @ pH 6.5



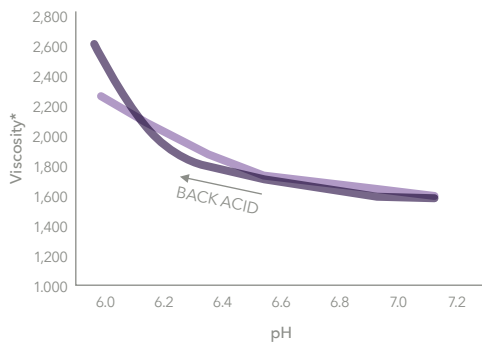
\*Brookfield® viscosity at 20 rpm (mPa-s)

Increasing concentration has a positive response for viscosity and yield while maintaining excellent clarity

## BACK-ACID THICKENING TECHNIQUE

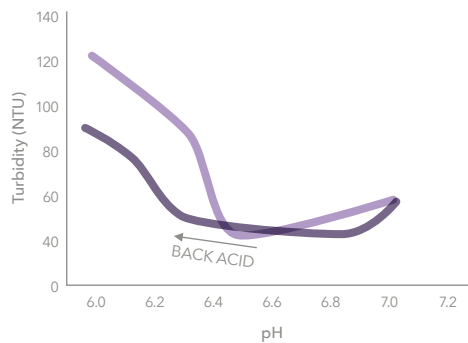
11.2% active Sodium Laureth Sulfate, 2.3% TS Cocamidopropyl Betaine, 2.5% TS Carbopol® Fusion S-20 polymer @ pH 6.5

### BACK ACID THICKENING - EFFECT ON VISCOSITY



\*Brookfield® viscosity at 20 rpm (mPa-s)

### BACK ACID THICKENING - EFFECT ON TURBIDITY



Slightly higher viscosity, and increased clarity with back acid pH adjustment

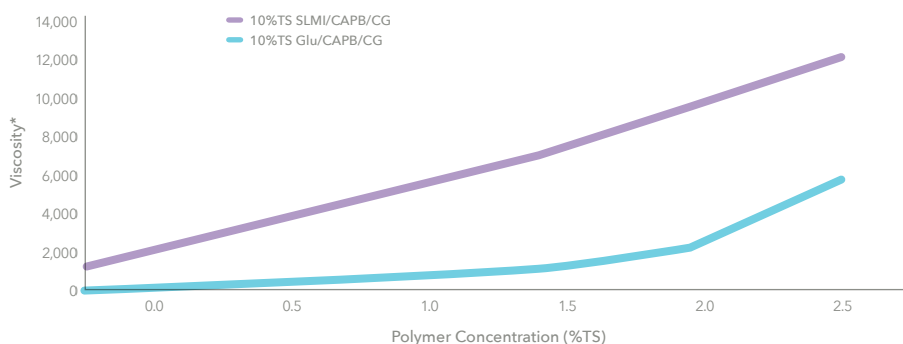
# PERFORMANCE IN SULFATE-FREE SYSTEMS

## SULFATE-FREE CHASSIS - ISETHIONATE & GLUTAMATE

5.0% active Sodium Lauroyl Methyl Isethionate, 3.0% active Cocamidopropyl Betaine, 2.0% active Coco-glucoside @ pH 5.5-6.0

2.0% active Glutamate, 5.0% active Cocamidopropyl Betaine, 3.0% active Coco-glucoside @ pH 5.5-6.0

### CARBOPOL® FUSION S-20 POLYMER CONCENTRATION CURVE IN SULFATE-FREE SYSTEMS



\*Brookfield® viscosity at 20 rpm (mPa-s)

Excellent viscosity response with Isethionate surfactants and good performance in difficult to thicken Glutamate chassis. Increasing polymer level improves viscosity

# SKIN CLEANSING

## FOAM PERFORMANCE & SENSORY

CL-H0052 with Carbopol® Aqua SF-1 polymer

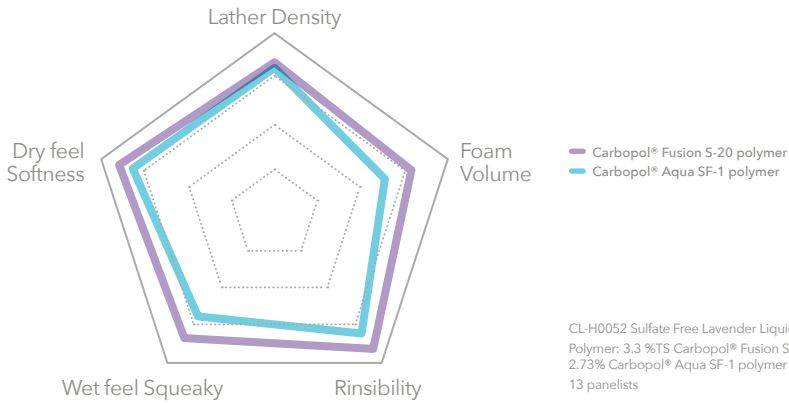
CL-H0052 with Carbopol® Fusion S-20 polymer

Panelist 2



Foam volume is visually better with Carbopol® Fusion S-20 polymer

### • Panelist Perceived Sensory



Sensory is parity with Carbopol® Aqua SF-1 polymer

## CLARITY

Sulfate-free Lavender Liquid Hand Soap CL-H0052

Carbopol® Aqua SF-1 polymer

Carbopol® Fusion S-20 polymer

Initial



Improved visual clarity compared to Carbopol® Aqua SF-1 polymer in this chassis

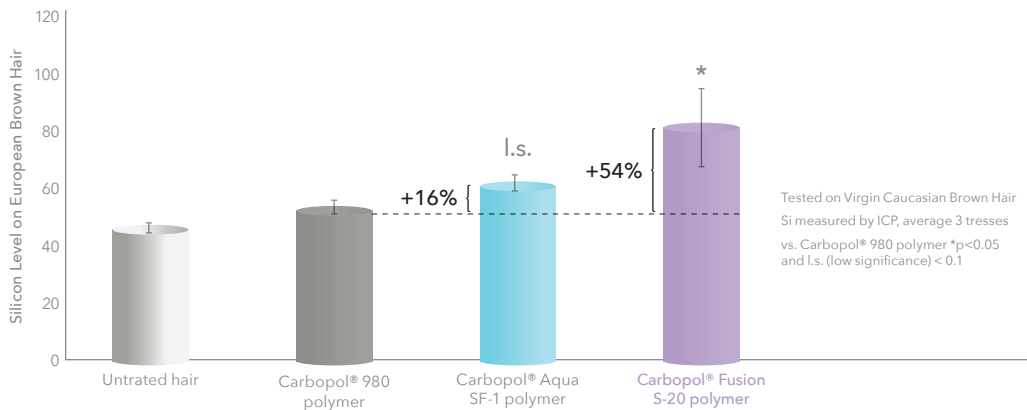
Polymer: 3.3 %TS Carbopol® Fusion S-20 polymer / 2.73% Carbopol® Aqua SF-1 polymer  
 Surfactants: 11.03% TS  
 pH= 6.8-7.0

# HAIR CARE

## LPS SILICONE DEPOSITION

2-in-1 Conditioning Shampoo SH-0207B with LPS silicone

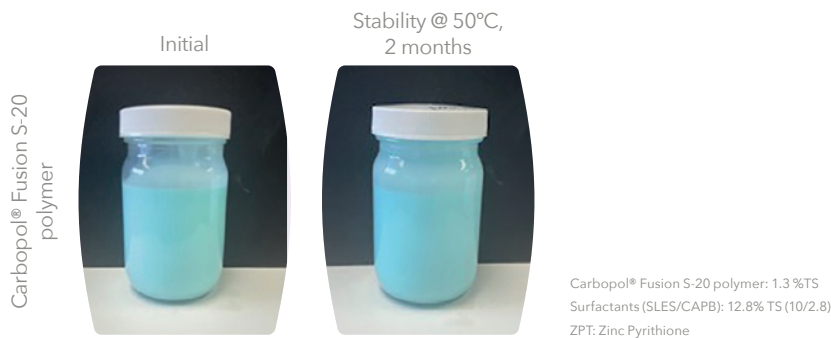
SH-0207B SILICONE ON VIRGIN CAUCASIAN BROWN HAIR - LPS SILICONE



LPS: Large Particle Size silicone  
 Carbopol® Fusion S-20 polymer/ Carbopol® Aqua SF-1 polymer: 1.75 %TS / Carbopol® 980 polymer: 0.4%TS (salt added) / 1% TS Silicone (LPS)  
 Surfactants (SLES-2/Betaine): 12.8 %TS (10/2.8), pH= 5.3

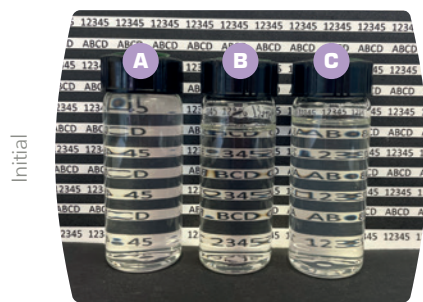
## ZPT STABILIZATION

Flake-free Anti-dandruff Conditioning Shampoo with ZPT SH-0204



## SYNERGISTIC BENEFIT WITH GLUCAMATE™ THICKENER

Clear Antipollution Sulfate-free Shampoo with Charcoal Beads SH-0202



- A. w/o Glucamate™ LT or VLT thickener
- B. w Glucamate™ LT thickener
- C. w Glucamate™ VLT thickener

Test performed on SH-0202 without the addition of beads to compare viscosity and clarity with and without the addition of a co-thickener.  
 Key Ingredients: 2.6 %TS Carbopol® Fusion S-20 polymer, 0.9 %TS Glucamate™ LT thickener/Glucamate™ VLT thickener.

Formulations containing combination of cationic polymer and Carbopol® Fusion S-20 polymer can show some level of LPS silicone deposition

Appropriate viscosity range, shampoo texture and ZPT suspension capabilities

The addition of co-thickeners leads to increasing viscosity and good clarity, especially with Glucamate™ LT thickener in this chassis for better clarity

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