

## Experiment 3 — Informal Lab Notebook / Junior Researcher Notes

### Focus: Foam Reduction + Process Sequencing

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Team: Haircare Concepts

Ref code maybe: HC-SF-09?

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Trying another sulfate-free shampoo setup because the last one foamed like crazy during mixing and took forever to deaerate.

Main idea this time:

- lower starting RPM
- add CAPB earlier
- see if that calms the Sarcosinate behavior

Not really changing fragrance system.

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### Ingredients Used

water — around 400g

Sarcosinate (same as before I think batch X1 something) — 60g

CAPB — 50g

PEG-40 HCO — 10g

Lavender fragrance — 4g

citric acid solution — used at end

tiny amount blue dye added too

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### Setup

Used:

- small jacketed kettle
- IKA mixer
- handheld pH meter

- Brookfield (spindle 4 maybe?)
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## **What Happened**

Started with water @ room temp.

Added CAPB FIRST this time before the Sarcosinate.

Mixer only around 100 rpm initially.

Honestly much better already — way less foam at the start.

After Sarcosinate addition:

- still foamed some
- but nowhere near overflow situation from prior batch

Heated to ~50C later because the PEG-40 looked streaky.

That helped clear it.

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Fragrance + PEG premix:

looked cloudy at first but became clear after warming.

Added this around 40C.

No obvious clumps this time.

Maybe temperature matters more than extra mixing?

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## **pH Stuff**

Before adjustment = about 7.5

Added citric acid slowly.

Overshot once to 5.0 accidentally.

Corrected slightly with diluted base.

Final around 5.4–5.5.

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## **Measurements**

Viscosity:

~4,700 cP

Still thinner than store shampoo.

Appearance:

clear but not perfectly crystal clear

Foam during processing:

definitely reduced compared to previous runs

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### **Important Thoughts**

Possible relationships:

- lower RPM helped foam issue a lot
- adding CAPB earlier may also help
- warming PEG/fragrance blend improved clarity
- high temp maybe not necessary overall

Need to test:

1. same sequence but higher solids
2. compare 100 rpm vs 300 rpm directly
3. maybe salt-thicken later