



Sun-Smart Family: Natural Home Care for Summer



27 February 2025

Product Highlights

Sufraquat series

Sufraquat FS

Sufravon 874

Potassium Cocoate





Sufraquat FS: Triethanolamine Esterquats

A coconut-based esterquats with different variants that serve different market needs



Sufraquat FS

These quaternary ammonium compounds are known in the industry for its conditioning, antistatic and antimicrobial effects.



Cruelty-Free



Stable



Market-specific



Made from Sustainable Coconuts



Cationic Surfactant



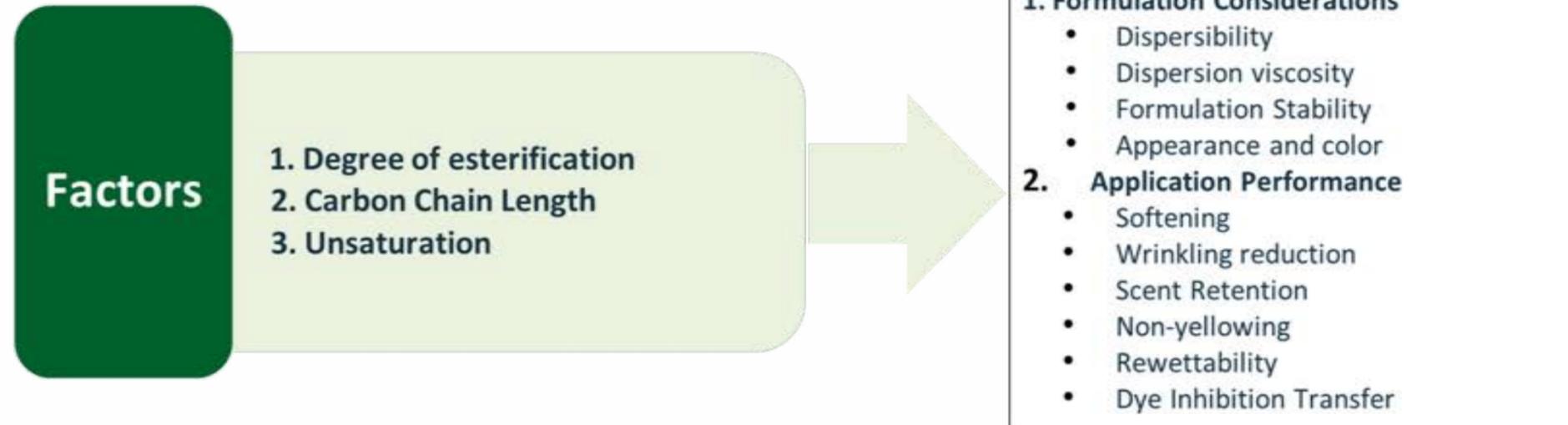
Nitrosamine-free



Natural Ingredient (Based on ISO 16128)

Sufraquat FS

Impact on Performance due to Molecular Structure



Predictor	Dispersibility	Formulation Stability	Dispersion Viscosity	Rewettability	Softening	Wrinkling reduction	Scent Retention	Non-yellowing	Dye Inhibition Transfer	Scent Retention	Milky Appearance
↑ Degree of Esterification	↓	↓	↑	↓	↑	↑	↑	↓	↓	↓	↑
↑ Carbon Chain Length											
↑ Unsaturation	↑	↑	↓	↑	↓	↓	—	—	—	↑	↓

Water Loving More Fat-Loving

Sufraquat FS

Market Segments for Fabric Softeners

Market Segments	Definition	Esterquat Requirement
Economical	Low dosage but with considerably good viscosity Dosage: 1%-3% Viscosity: 80 cPs- 300 cPs	High dispersion viscosity 1. Sufraquat FS300i 2. Sufraquat FS200i
Regular	Regular dosage with a medium viscosity Dosage: 4%-8% Viscosity: 40 cPs-100cPs	Regular viscosity 1. Sufraquat FS100i (milky appearance) 2. Sufraquat FS20i (Rich semi-translucent appearance)
Premium	High dosage with medium to high viscosity Dosage: 10%-15% Viscosity: 60 cPs-700 cPs	Low viscosity 1. Sufraquat FS50i 2. Sufraquat FS25i
Industrial	Ultraconcentrated but with low to medium viscosity Dosage: 15%-50%	Non- viscosity building 1. Sufraquat FS25i

Sufracquat FS

essential summer fabric care solution



Fabrics Face Summer Challenges

Heat, humidity, and frequent washing impact fabric quality



Long-Lasting Freshness

Retains fragrance to combat sweat and odors



Fabric Protection

Prevents color fading/yellowing from sun exposure



Superior Softening

Prevents stiffness and enhances fabric comfort



Ideal for Summer

Keeps clothes soft, fresh, and vibrant all season long

Sufracquat FS
Formulated as
Fabric Softener



Sufraquat FS

Market Segments for Fabric Softeners

Economical Fabric Softener

Phase	Ingredient	INCI	Function	%
A1	Water	Aqua	Diluent	q.s. to 100
A2	Esterquat	Dialkylester Ammonium Methosulfate	Softening Active	3.0
A3	Fragrance	Fragrance (Non-encapsulated)	Aesthetics	1.0
A4	Preservative	Methylisothiazolinones (AND) Methylchloroisothazolinone	Preservative	0.1

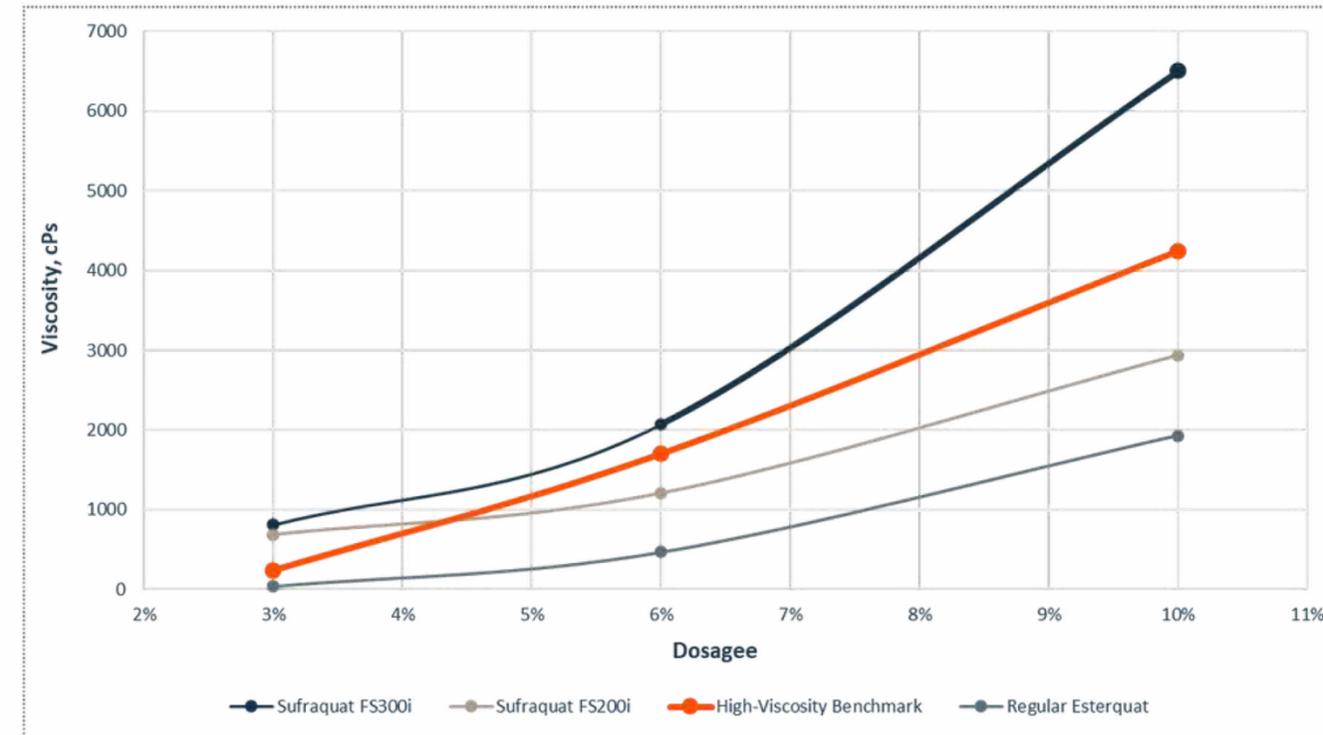
Regular Fabric Softener

Phase	Ingredient	INCI	Function	%
A1	Water	Aqua	Diluent	q.s. to 100
A2	Esterquat	Dialkylester Ammonium Methosulfate	Softening Active	6.0
A3	Fragrance	Fragrance (Non-encapsulated)	Aesthetics	1.0
A4	Preservative	Methylisothiazolinones (AND) Methylchloroisothazolinone	Preservative	0.1

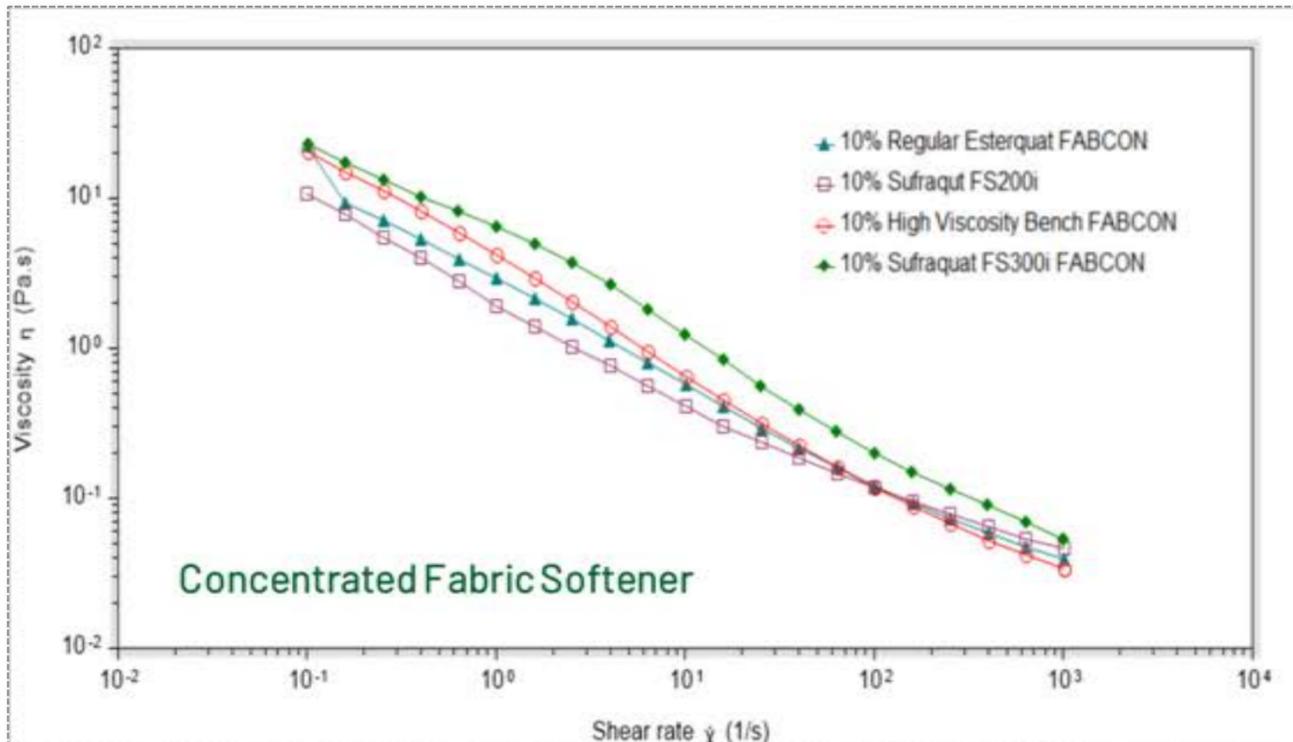
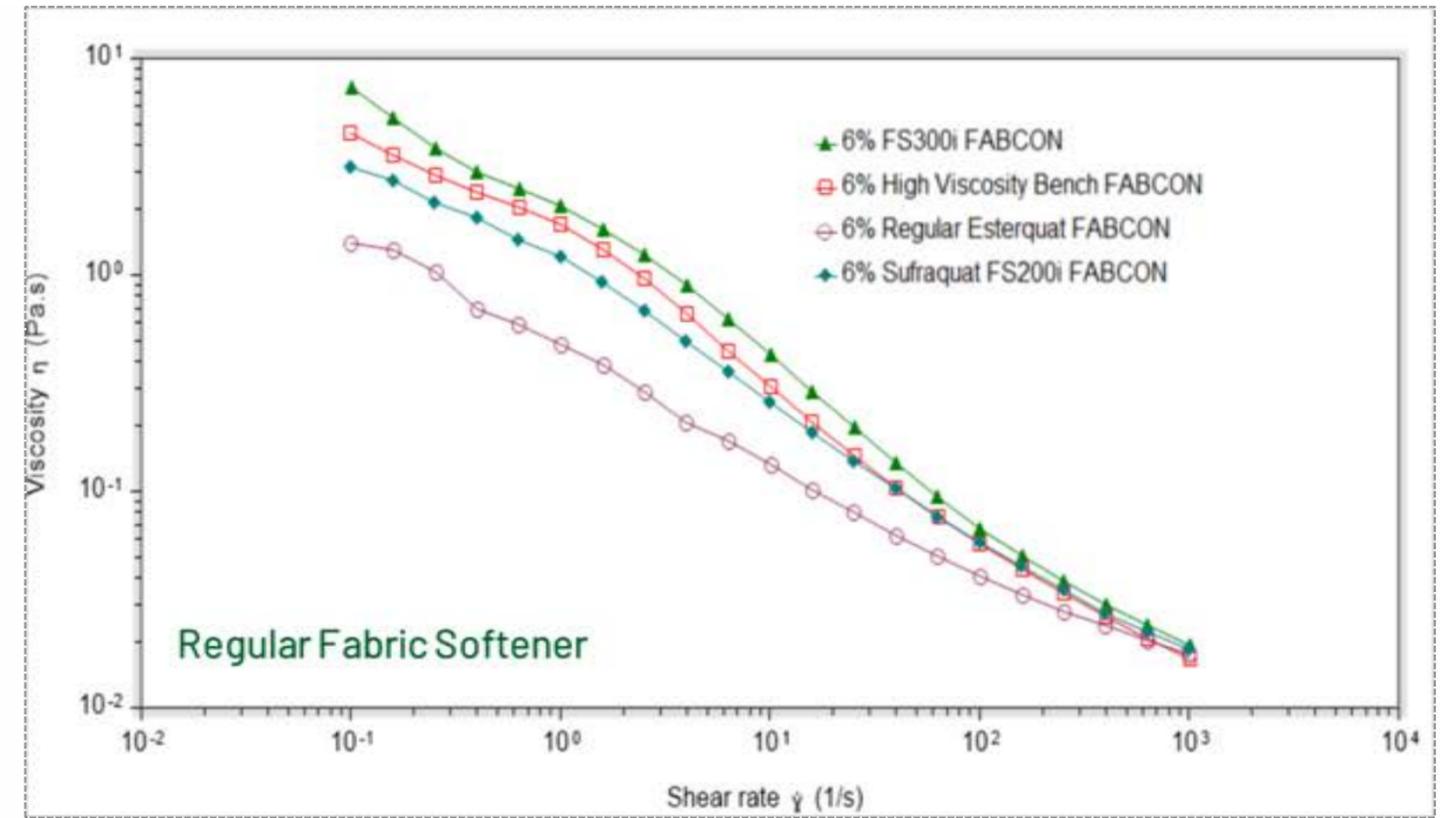
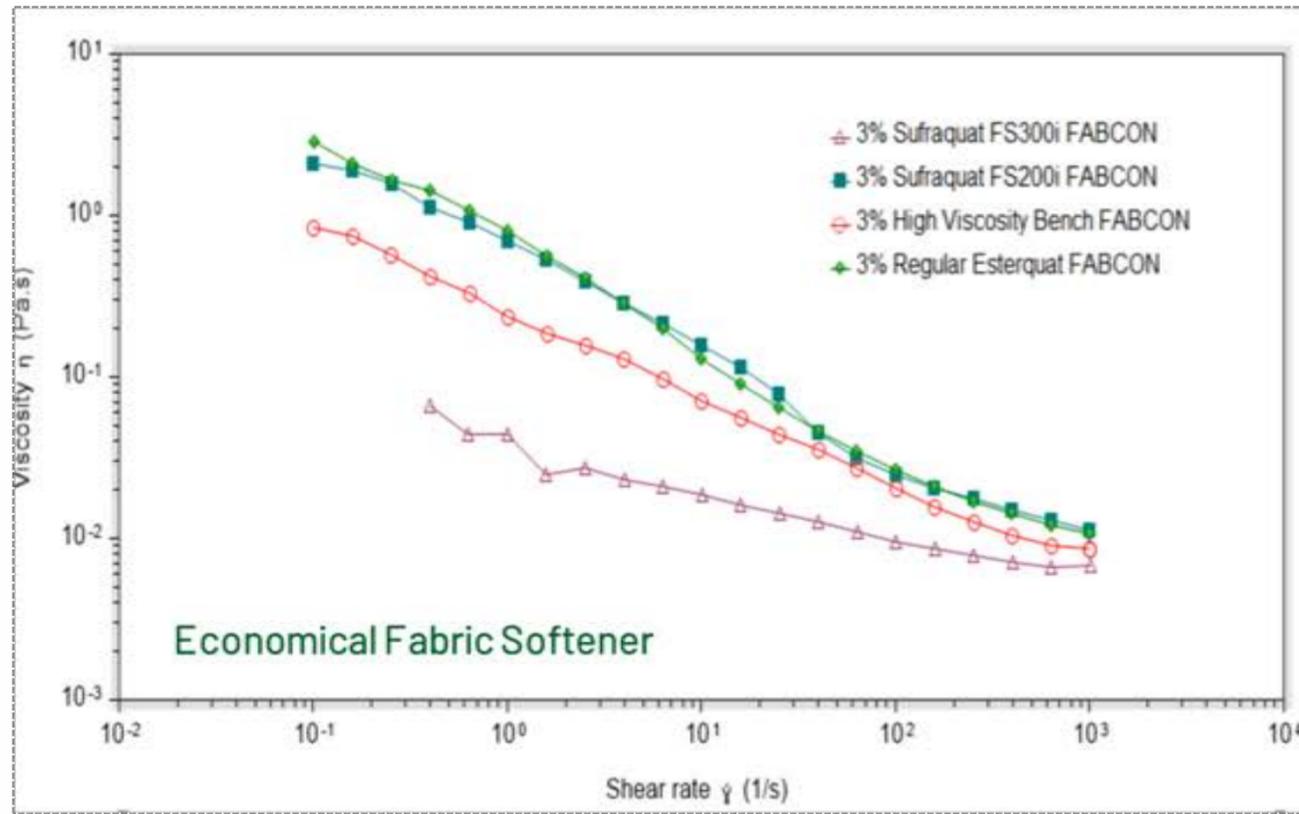
Concentrated Fabric Softener

Phase	Ingredient	INCI	Function	%
A1	Water	Aqua	Diluent	q.s. to 100
A2	Esterquat	Dialkylester Ammonium Methosulfate	Softening Active	10.0
A3	Fragrance	Fragrance (Non-encapsulated)	Aesthetics	1.0
A4	Preservative	Methylisothiazolinones (AND) Methylchloroisothazolinone	Preservative	0.1

Formulation Viscosity at 60RPM



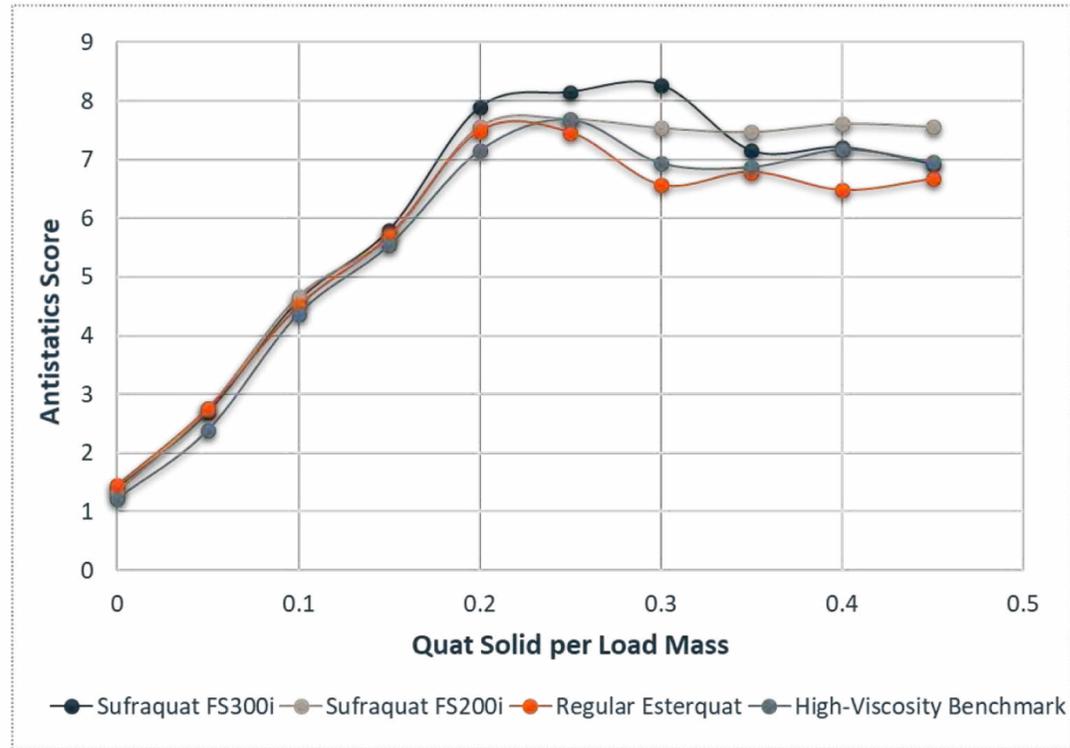
Esterquat	3% (Economical)	6% (Regular)	10% (Concentrated)
Sufraquat FS300i	810	2070	6500
Sufraquat FS200i	690	1210	2940
High-Viscosity Benchmark	240	1700	4240
Regular Esterquat	40	470	1930



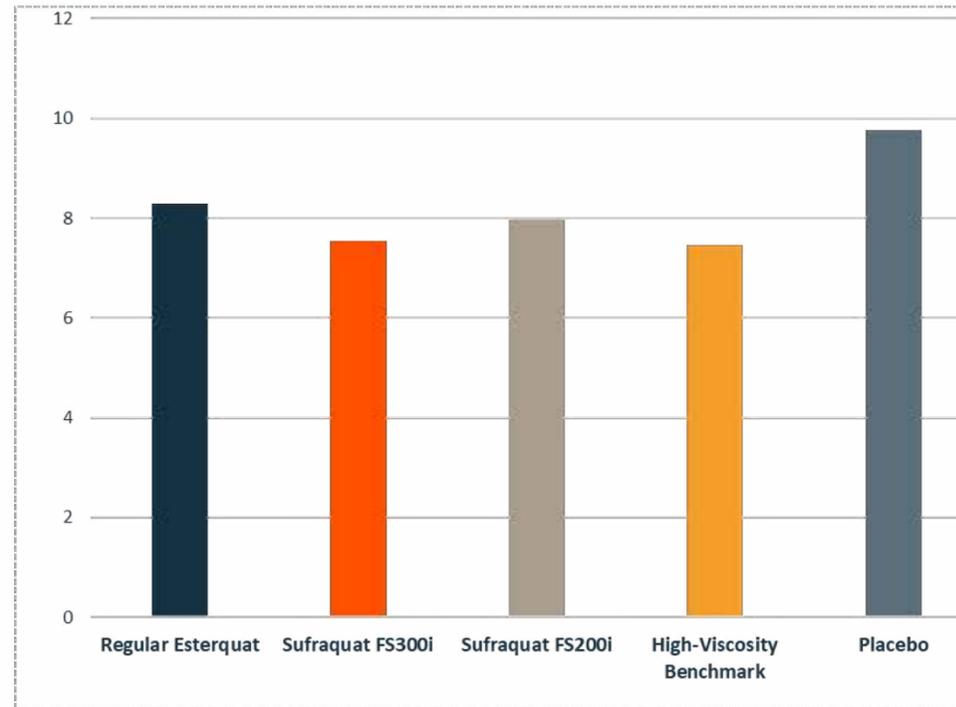
Sufraquat FS

- ✓ Sufraquat FS300i exhibit the highest viscosity across all the shear rate
- ✓ Sufraquat FS300i shows the most 'pseudoplastic' rheological profile among the esterquats as suggested by the slope of its curve

Antistatic Curve

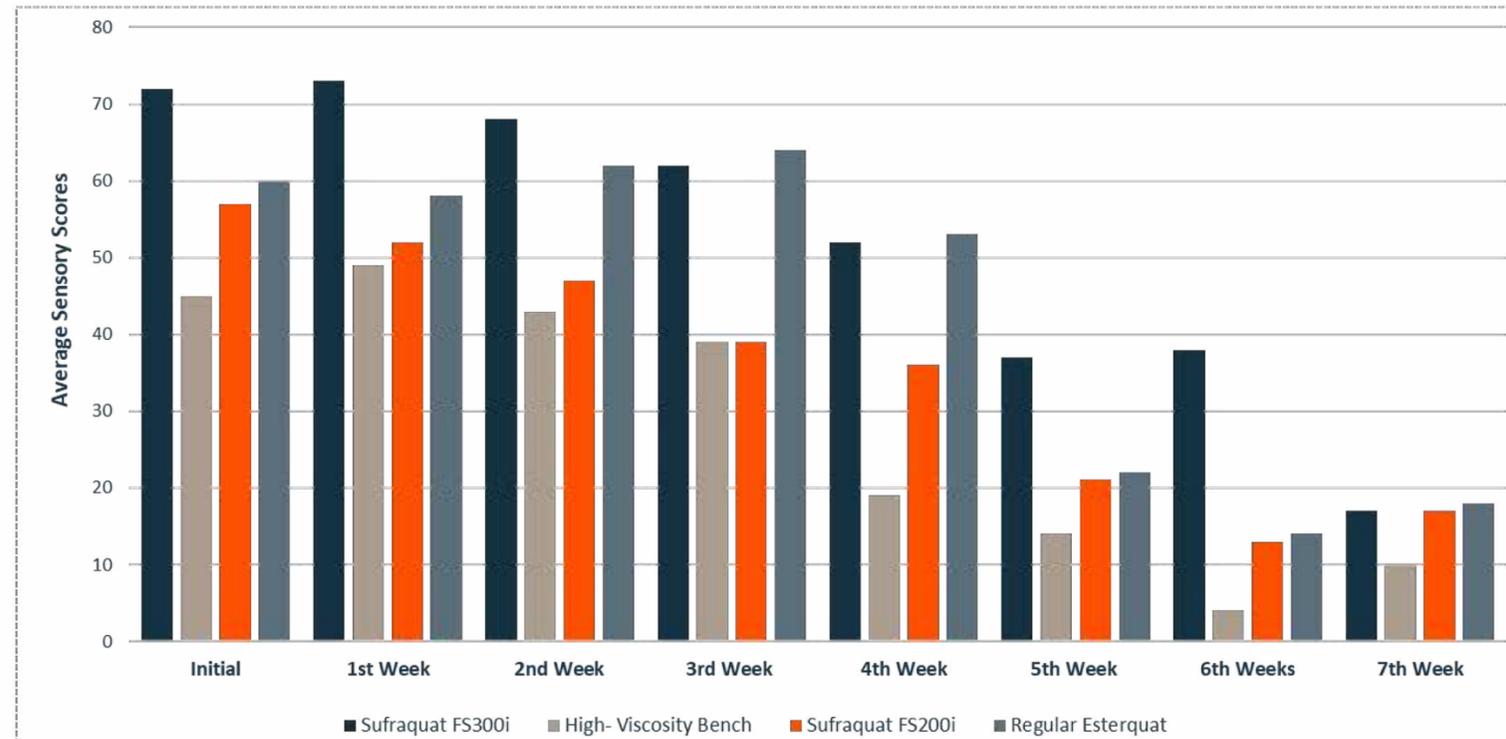


Rewettability Test



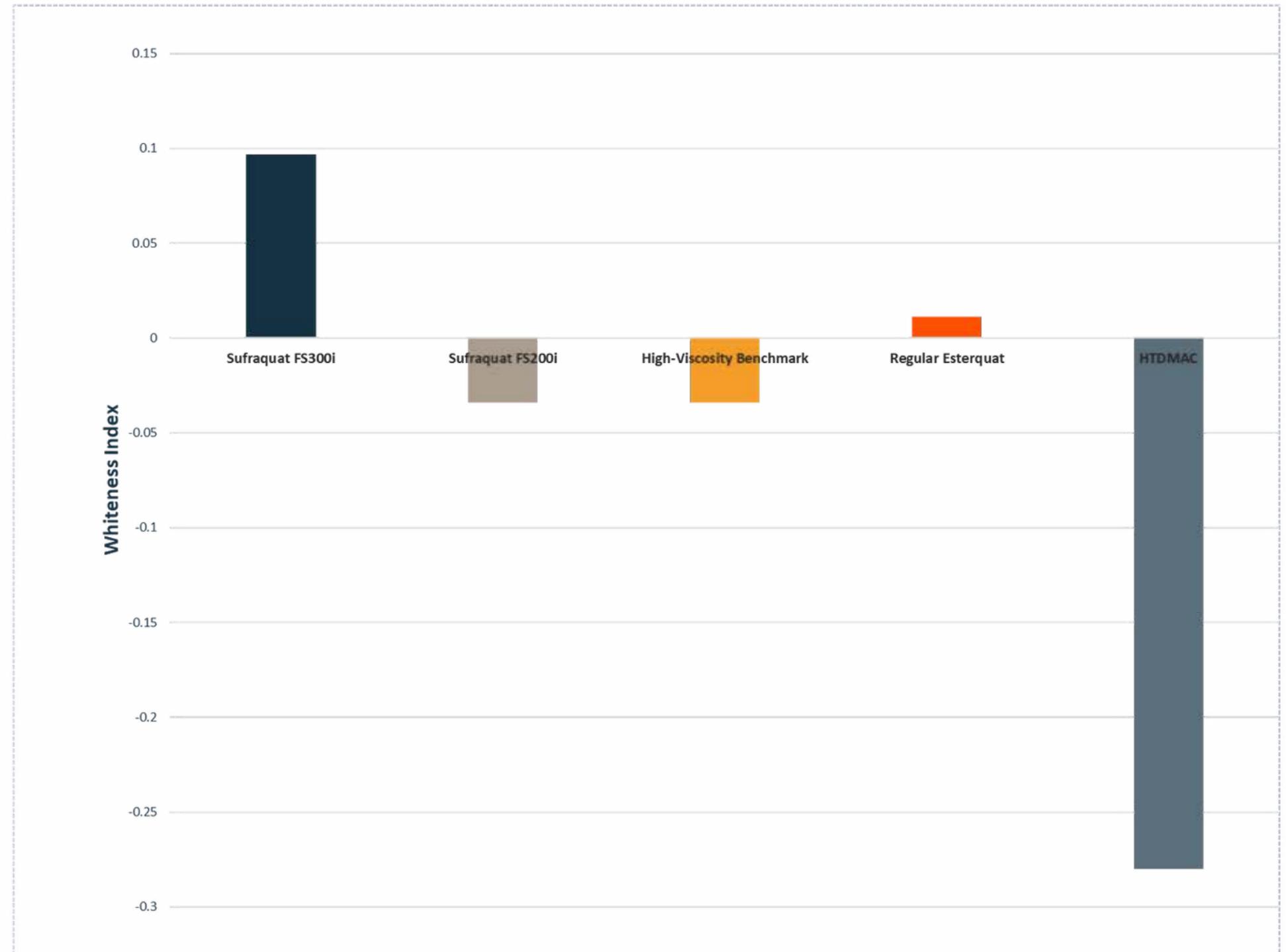
Textile Scent Retention

Cloth samples treated with the economical fabric softeners were placed in plastic wraps and were subjected to sensory evaluation



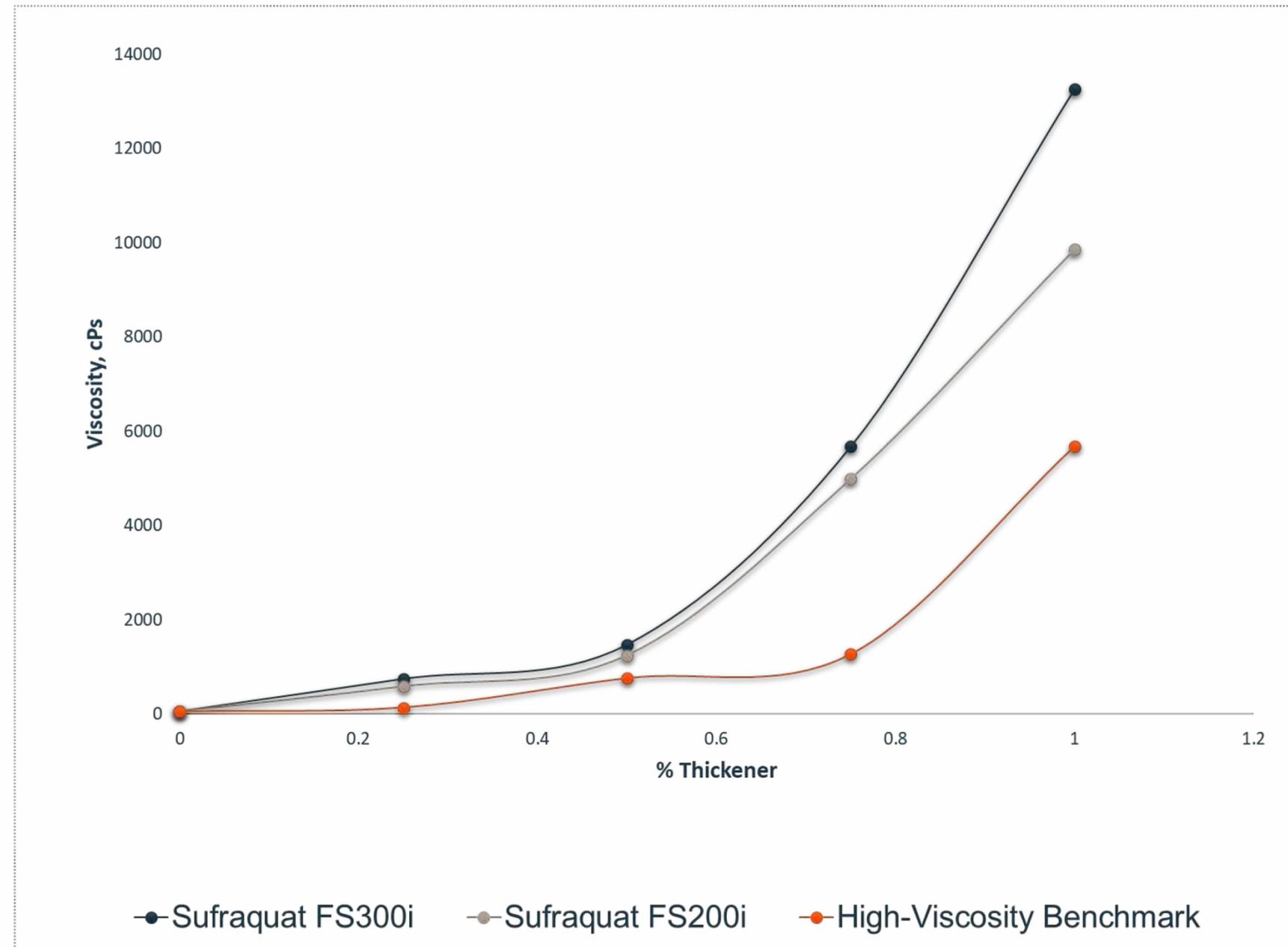
Non- Yellowing Performance

- All fabric softener were not able to 'stain' the clothes since the yellowness index are all negative.
- White cotton swatches were subjected into 10 cycles of detergent washing, rinsing, and fabric softener treatment.
- The whiteness index of the clothes where then tested using a spectrophotometer (ASTM E313-15).



Sufraquat FS300i and FS200i

Response with Thickeners



Ingredient	Percentage
Water	q.s 100
Esterquat	1.5
Fragrance	0.5
Preservative	0.1
Polyacrylate Thickener	0 to 1 %

- ✓ If customers want further lower dosage with high viscosities
- ✓ Cationic polymeric thickeners are ideal

Fabric Softener Market Segments

Economical
Household

2%-5%
Dosage

Regular
Household

6%-8%
Dosage

Premium
Household

10-15%
Dosage

I&I, and DIY
Household

20%-50%
Dosage

SUSTAINABILITY

- Tallow or palm-based Esterquats (MDEA & or TEA)
- Dialkyldimethylammonium Quats (DHTMAC)

- Diamidoamines
- Concentrated formulations

Challenges in concentrated fabric softeners



Non-Newtonian Behavior

- ▶ Very complex fluid
- ▶ Drastic viscosity increase during storage
- ▶ Addition of electrolytes



Formulation Stability

- ▶ Low stability: >9 months
- ▶ Fragrance separation and crystallization
- ▶ Addition of ethoxylates and acrylates as stabilizers



End Product Use Hurdles

- ▶ Poor water dispersibility
- ▶ Inconsistent active dosing
- ▶ Flammable/ DG Material

Fabric Softener Market Segments

Economical Household

2%-5% Dosage

Regular Household

6%-8% Dosage

Premium Household

10-15% Dosage

I&I, and DIY Household

20%-50% Dosage

Ultrapure I&I and DIY Household

80%-95% Dosage

SUSTAINABILITY

MORE SUSTAINABLE

- Tallow or palm-based Esterquats (MDEA & or TEA)
- Dialkyldimethylammonium Quats (DHTMAC)

- Diamidoamines
- Concentrated formulations

- **Sufraquat FS500**

Sufraquat FS500

N,N-BIS(ETHYLCOCOATE)
HYDROXYETHYLAMMONIUM METHOSULFATE



- ✓ **Sustainable feedstock:
Coconut**
- ✓ **Pure Active:
100% quaternary
compound**
- ✓ **Solvent-free and non-
flammable**
- ✓ **Ionic Liquid Nature:
Solidification point of 50 °F**

Current Softening Actives

ESTERQUATS, DIALKYLDIMETHYL
QUATS, DIAMIDOAMINES



- ▶ **Feedstock:
Soft oils, palm, tallow**
- ▶ **85-90% Active**
- ▶ **With alcohols
(flammable) or glycols**
- ▶ **Paste, flakes, or
viscous liquid**

Sufraquat FS500 makes ultrapure fabric softeners concept possible due to...

- 1 Due to its purity (100% vs. 85-90%)
- 2 Liquidity and viscosity (Stay liquid to as low as 50 F)
- 3 Easy processability
- 4 Fragrance oil compatibility (Dependent of the fragrance)
- 5 Non-flammable

Ultrapure Fabric Softener With Sufrquat FS500

1

Ready- To-Use

- ✓ Simpler formulation
- ✓ Requires clear instruction on dosing

2

For Dilution (DIY)

- ✓ Easy to disperse and process upon dilution with water
- ✓ Requires clear instruction for dosing and final usage

Ultrapure Fabric Softener With Sufrquat FS500

1 Ready- To-Use Formulation

Ingredient	Percentage, %
Sufrquat FS500	90
Fragrance Oil	10

Physicochemical	Results
Apperance	Clear liquid, light yellow
Viscosity	345 cPs



Ultrapure Fabric Softener With Sufrquat FS500

2 For Dilution (DIY) Formulation

Ingredient	Percentage, %
Sufrquat FS500	86.3
Fragrance Oil	8.5
0.15% Blue Colorant	4.2
MIT/CMIT	1.0
Physicochemical	Results
Apperance	Clear liquid, blue
Viscosity	215 cPs



Advantages of Ultrapure Fabric Softener Formulations



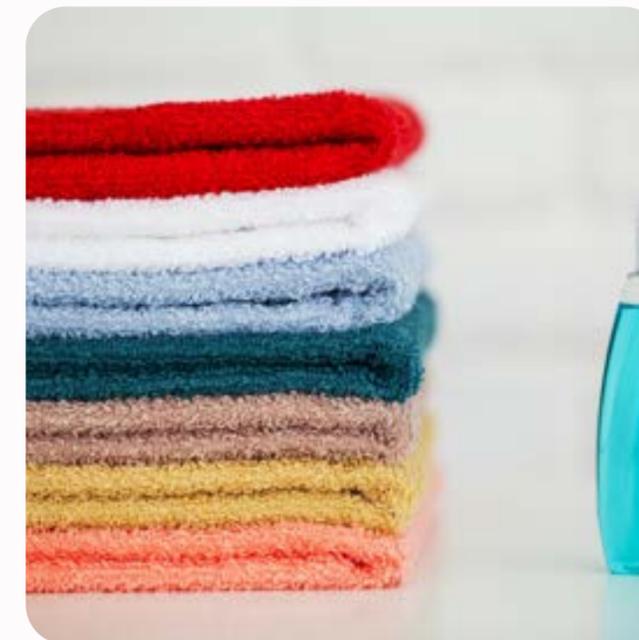
Newtonian Fluid Behavior



Ease of End Use



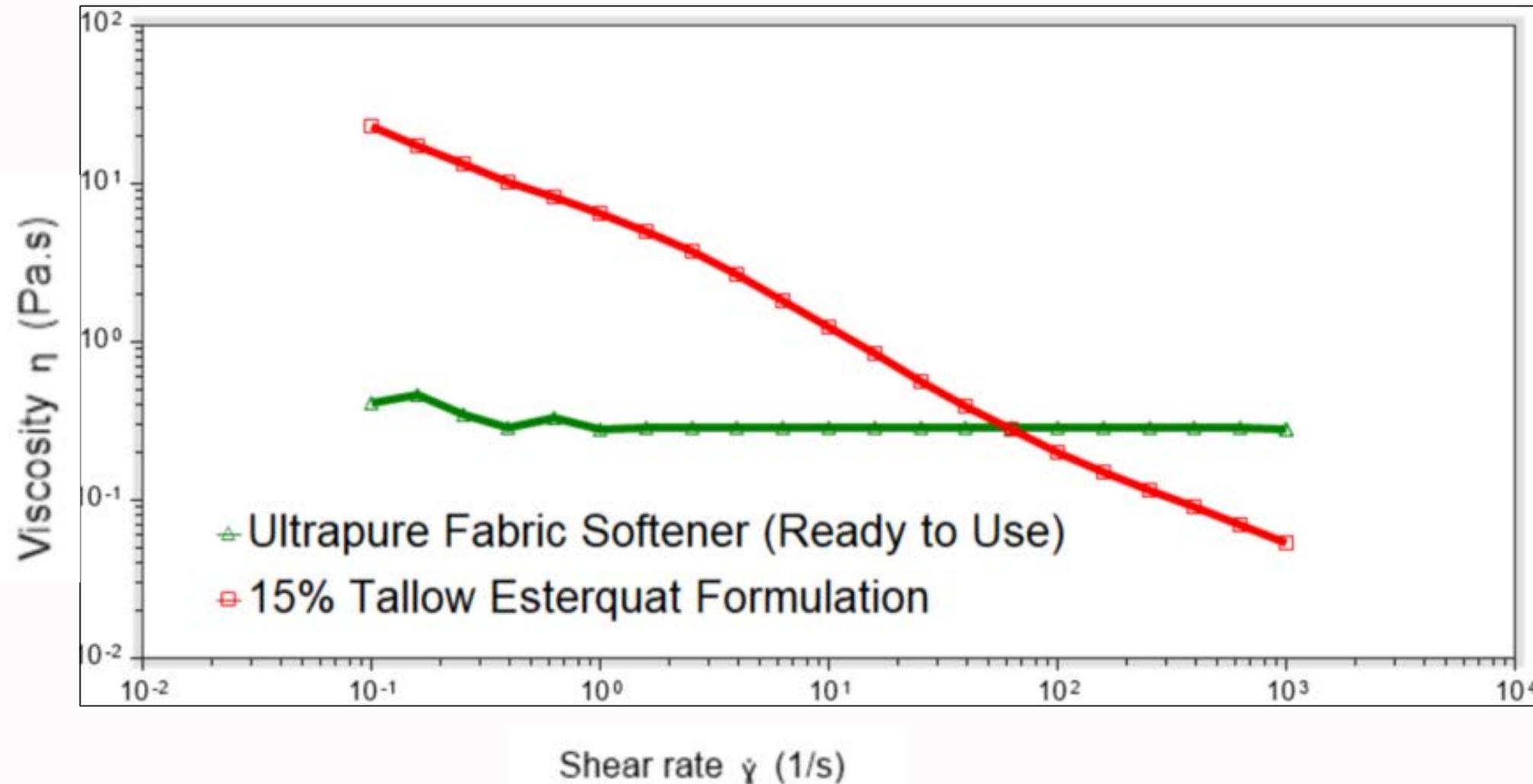
Formulation Stability



Comparable Performance

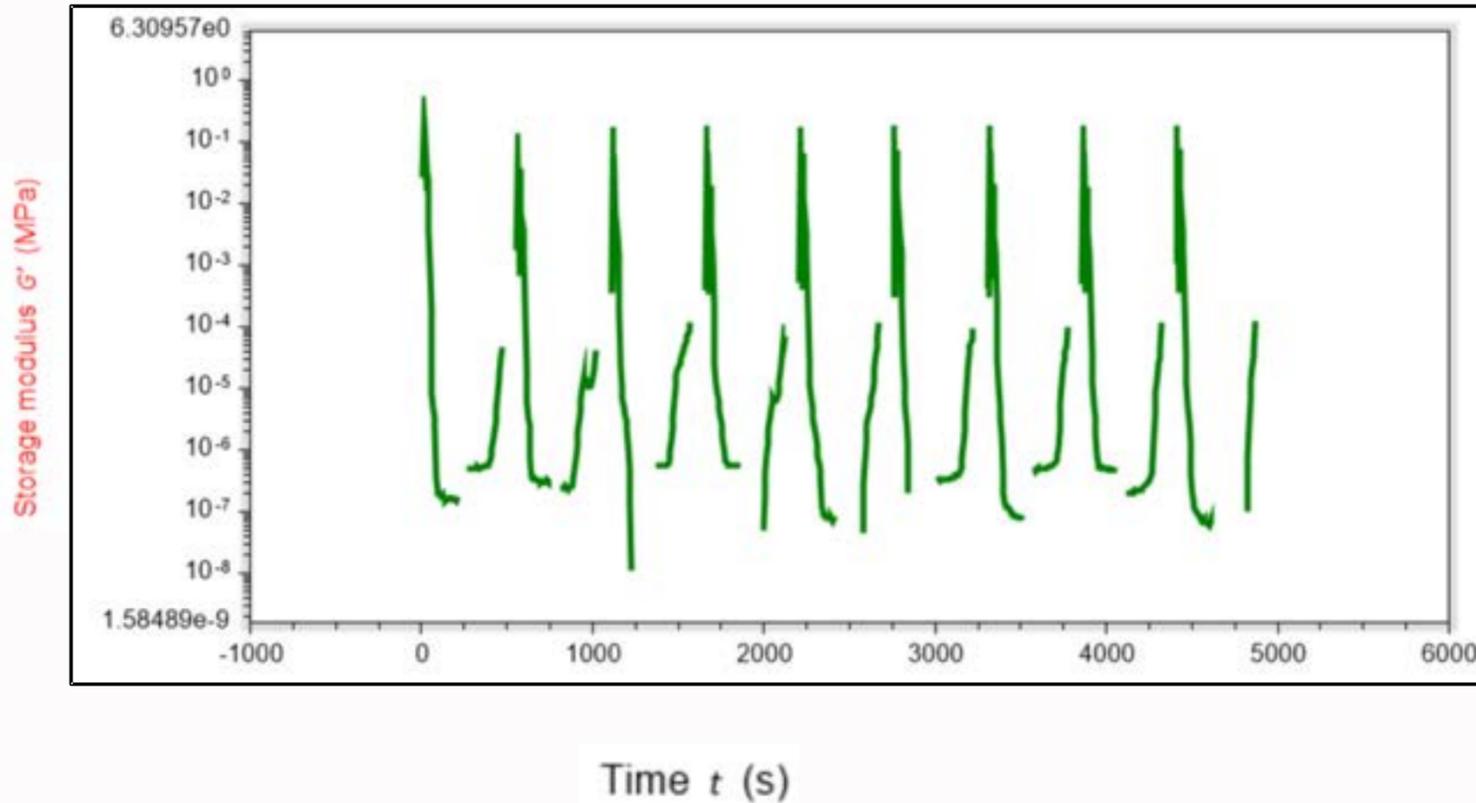
Advantages of Ultrapure Fabric Softener Formulations: Newtonian Fluid Behavior

Flow Sweep Experiment at 25 °C: Viscosity vs. Shear Rate



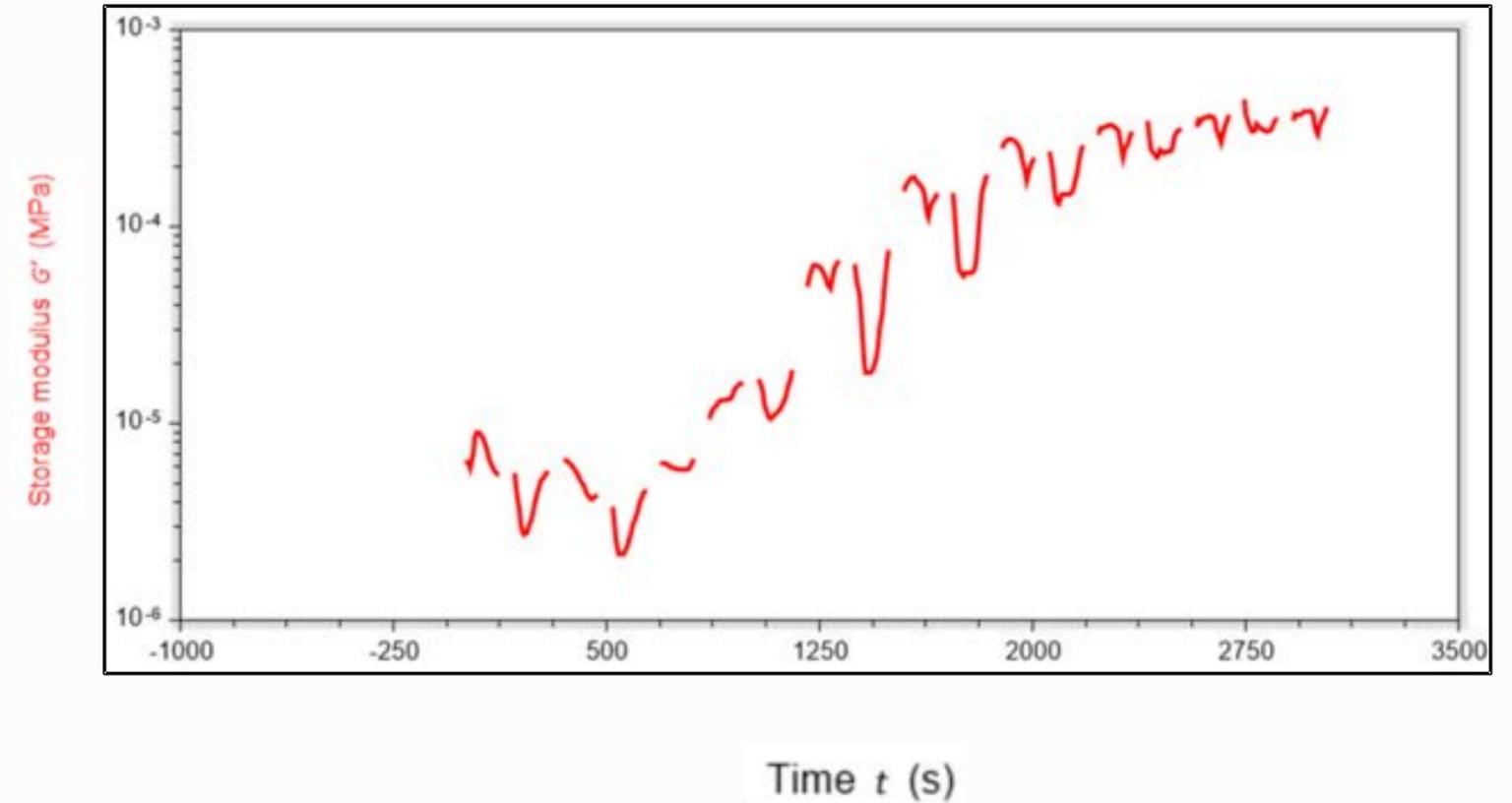
- ✓ Ultrapure formulations act like it is a 'pure solvent'
- ✓ Easy to predict the viscosity specification of the finished product

Advantages of Ultrapure Fabric Softener Formulations: Product Stability



Oscillatory Temperature Ramp Experiment (-5 °C to 55 °C):
Ultrapure Fabric Softener, 10 cycles

- Consistent graph across the different cycles
- $\Delta G' = 0.09$ Equivalent to > 3 years



Oscillatory Temperature Ramp Experiment (-5 °C to 55 °C): 15%
Tallow Esterquat Formulations, 10 cycles

- Elastic behavior increased dramatically
- $\Delta G' = 23.45$ Equivalent to 12 months

Advantages of Ultrapure Fabric Softener Formulations: Ease of End Use



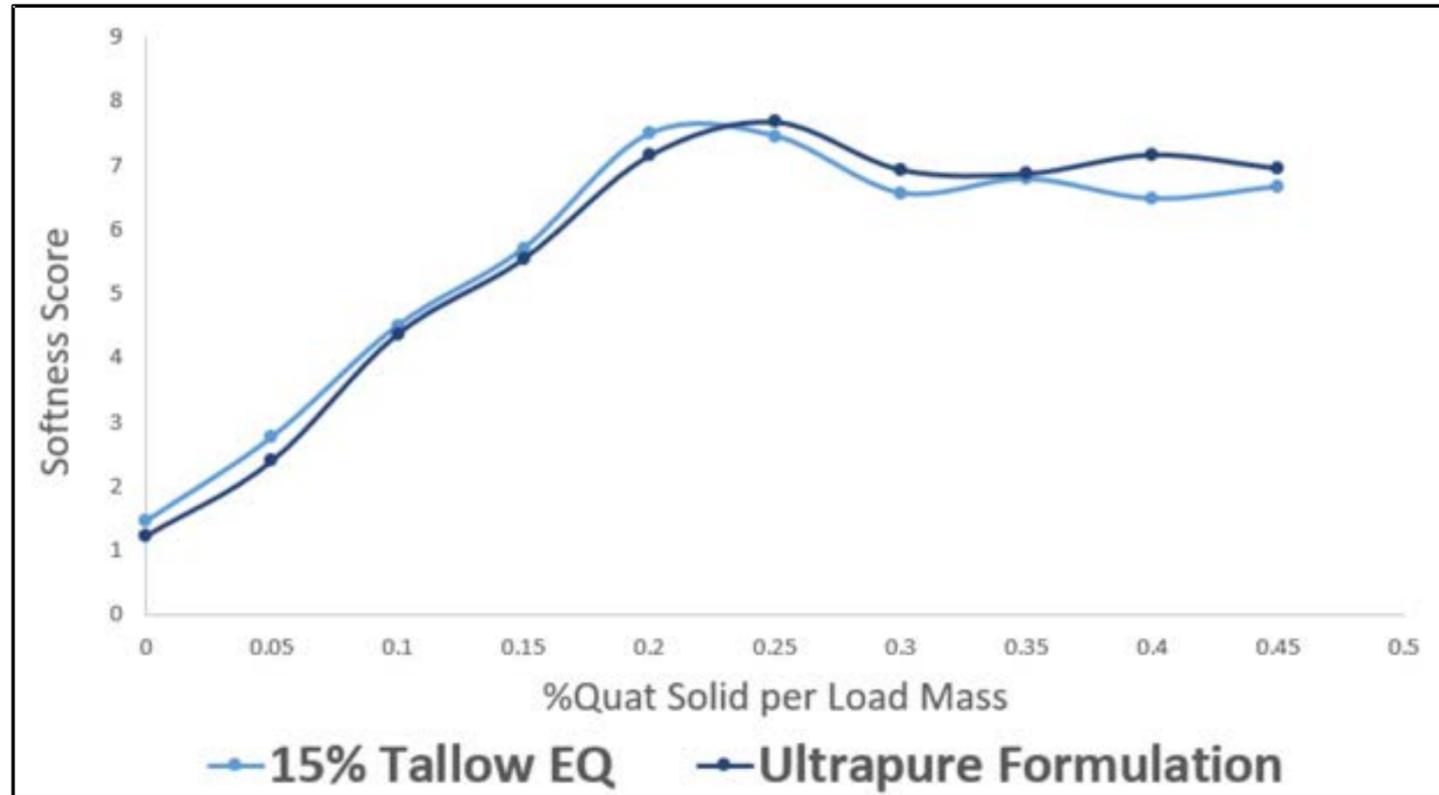
Ready-to Use



Dilution: 8%

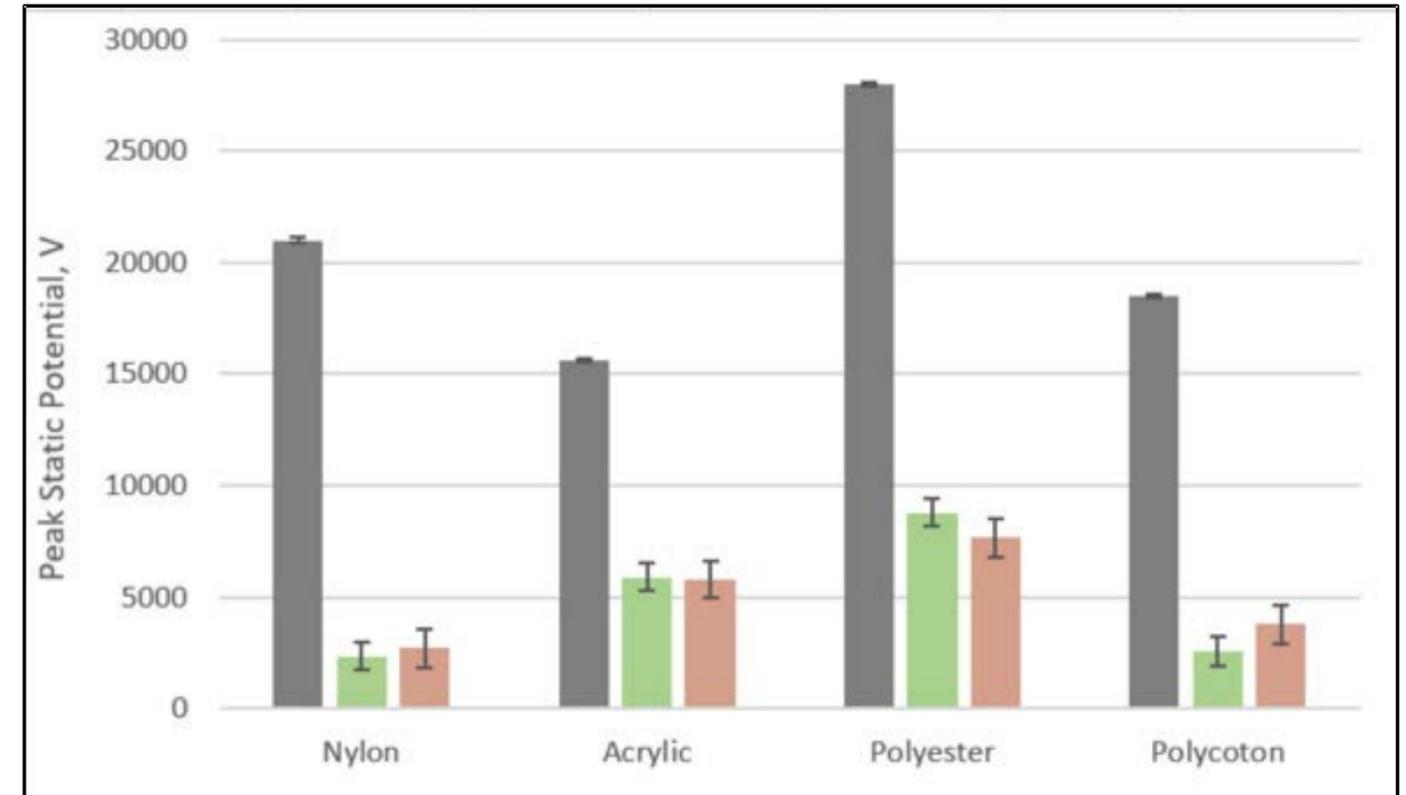
- ✓ **Readily dispersible in water**
- ✓ **Clear use instruction**

Advantages of Ultrapure Fabric Softener Formulations: Comparable Performance



Sensory evaluation results with 15 respondents

- ✓ **Comparable optimized dosing of 0.2% to 0.25% quat based on the washload**



Peak potential values in different types of fabrics

- ✓ **Comparable antistatic performance**

Key Takeaways



More Sustainable

Ultrapure fabric softener formulation concept is a more sustainable approach in highly built formulation sustainability approach.

Sufraquat FS500

Is a coconut-derived, non-flammable, and highly fluid quat that allows the formulation of ultrapure fabric softeners



Softener Formats

Ultrapure fabric softener can be positioned in ready-to-use household format or in dilution (or DIY) format

Ultrapure Advantages

Ultrapure formulations are simples, cold processable, stable, easy to use, unique format, easy for end use

Sufravon

Anionic Surfactants

These primary surfactants are known for their cleaning, degreasing and detergency properties in the industry.

Variant: Sufravon 874

A Cutting-Edge and Sustainable Surfactant
for Modern Personal Care and Home Care



Sufravon 874

Product Features

Properties	Typical
Appearance	Clear, light yellow liquid
pH (as is)	9.50 - 11.00
Specific Gravity	1.02 - 1.05
Free Glycerine, %	0.60 max
Free Fatty Acid as Lauric, %	0.65 max
Non Volatile, %	30 - 35

INCI : C12-C18 Potassium Soap

**Primary Surfactant for Liquid Laundry Soaps
and Dishwashing Liquids**



Excellent Degreasing Ability



Easy to Rinse



Excellent Foaming Property



Mild on Hands

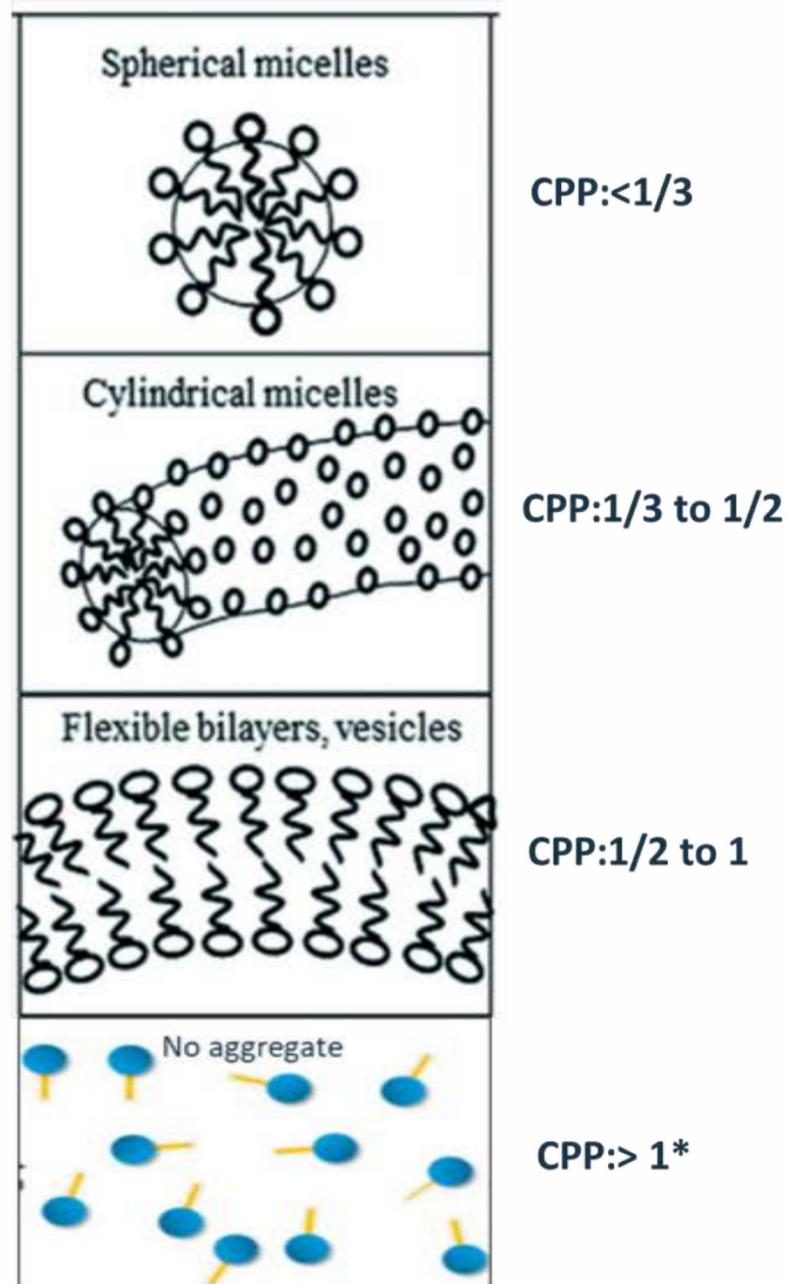
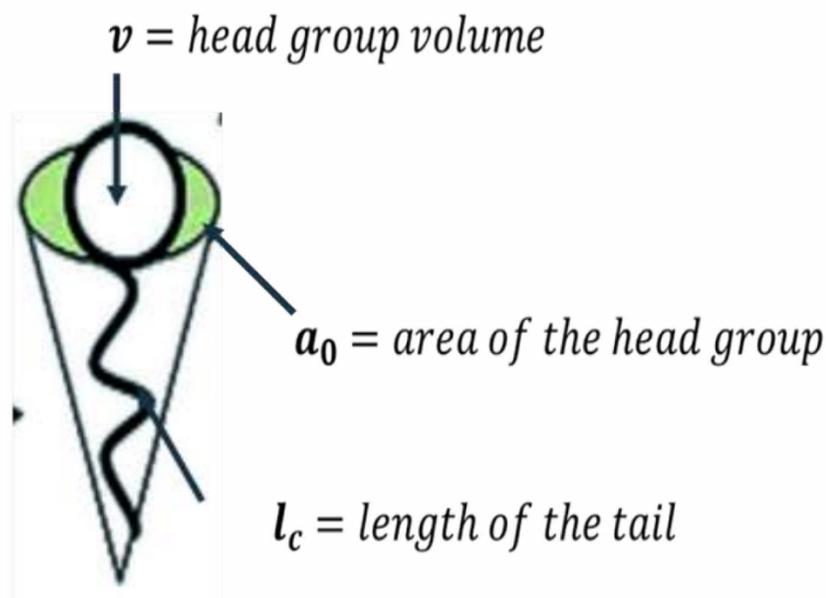


COSMOS APPROVED

Sufravon 874

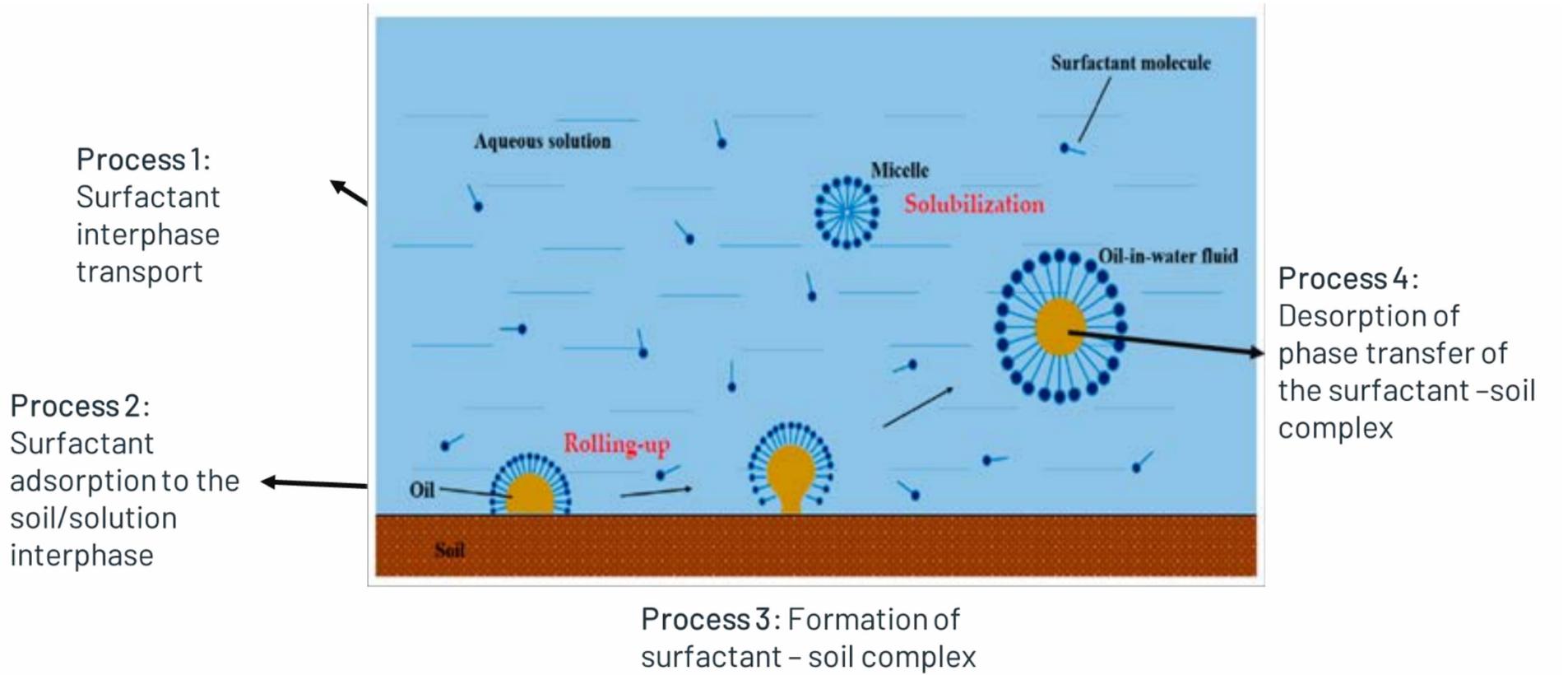
Cleaning Concept: Critical Packing Parameter (CPP)

$$CPP = \frac{v}{a_0 \times l_c}$$



- ✔ Tells which aggregate geometry a surfactant forms at diluted solution.
- ✔ CPP affects the cleaning performance of surfactants

Sufravon 874



Soil Removal Mechanism	Favorable Factor			
Process 1: Surfactant interphase transport	No aggregate	Spherical micelles	Cylindrical micelles	Flexible bilayers, vesicles
Process 2: Surfactant adsorption to the soil/solution interphase	Flexible bilayers, vesicles	No aggregate	Cylindrical micelles	Spherical micelles
Process 3: Formation of surfactant – soil complex	No aggregate			
Process 4: Desorption of phase transfer of the surfactant –soil complex	Heat and Mechanical Action			

Sufravon 874

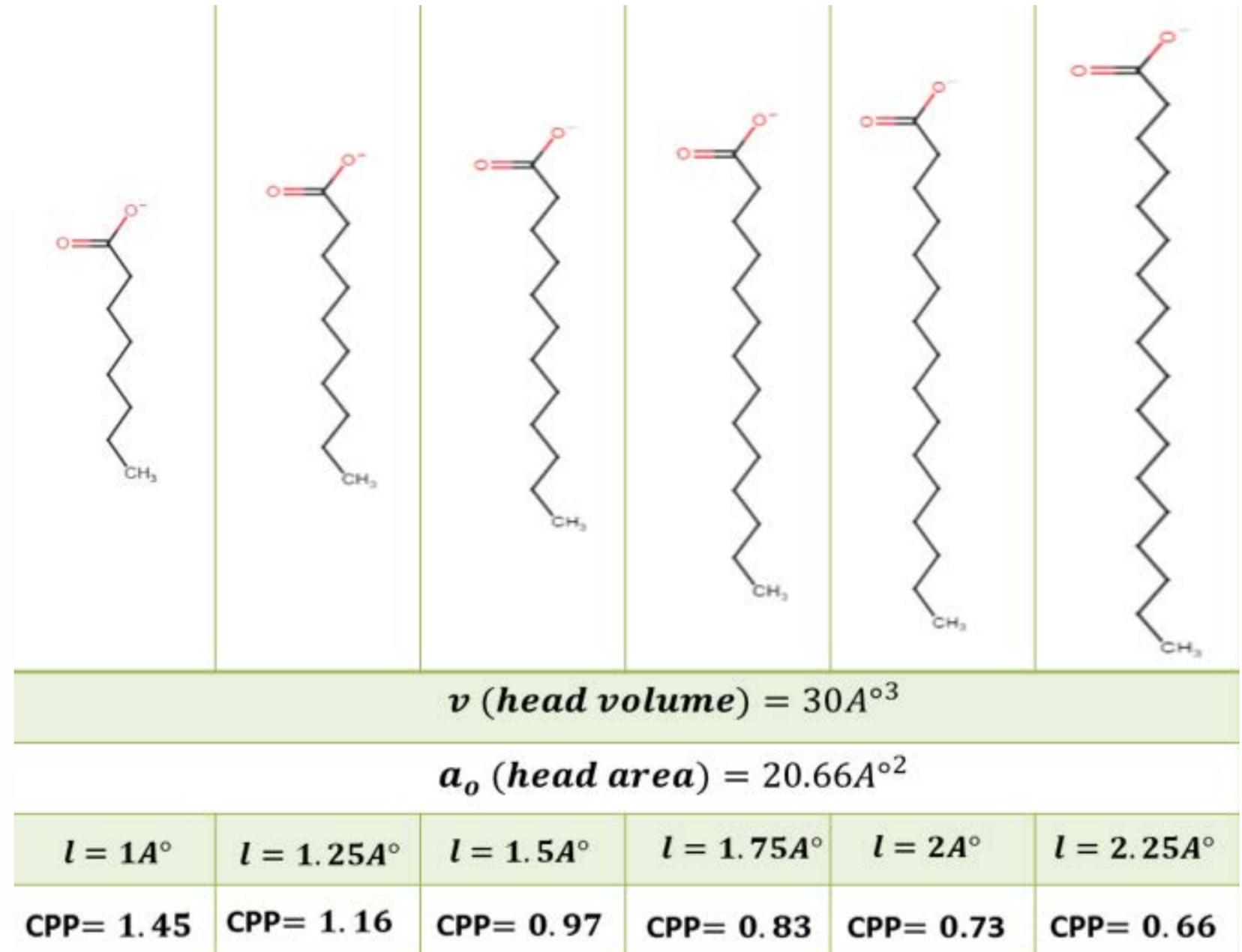
Critical Packing Parameter and Aggregate Structure

Aggregate formation:

- ✓ Flexible bilayer vesicles
- ✓ Free, non-aggregated molecules

Sufravon 874 is therefore beneficial in:

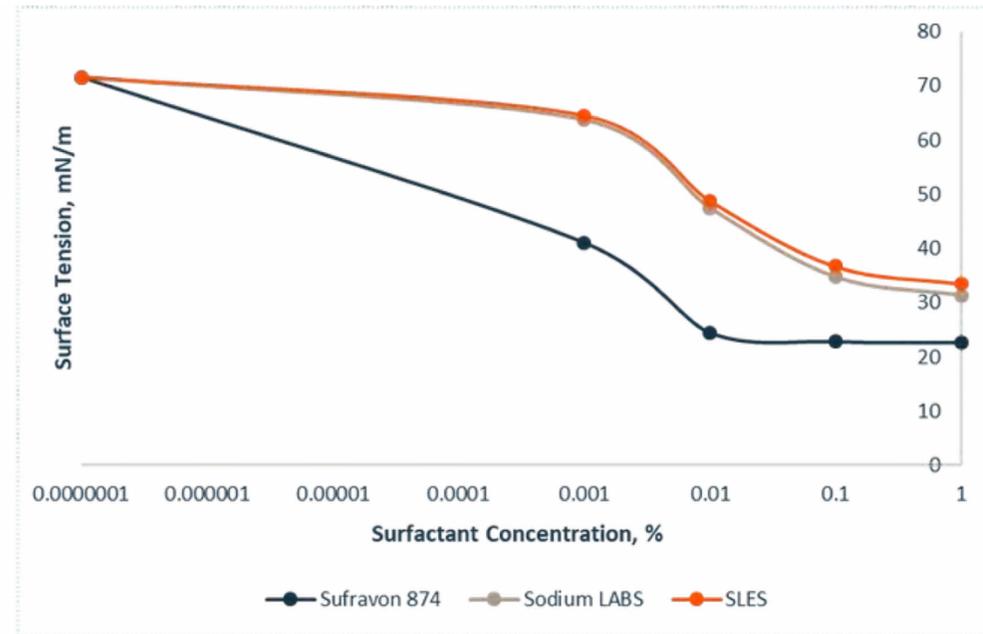
- ✓ Process 1: Fast kinetics of phase transfer
- ✓ Process 2: Faster adsorption to the soil interphase
- ✓ Process 3: Surface tension lowering in the soil interphase



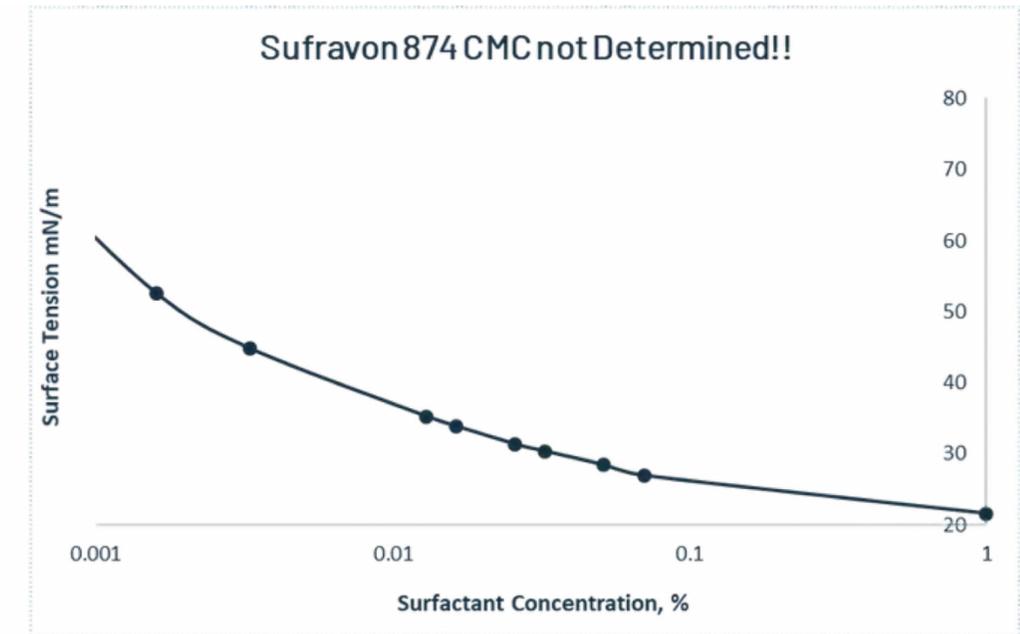


Sufravon 874

Surface Tension Lowering Performance

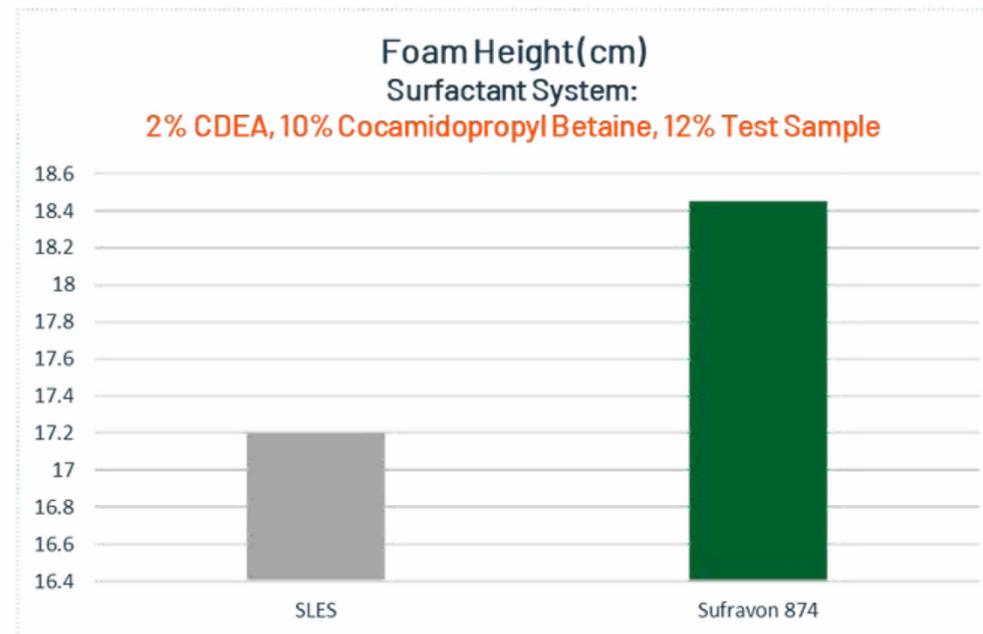


Sufravon 874 has better surface tension lowering performance than synthetic primary surfactants

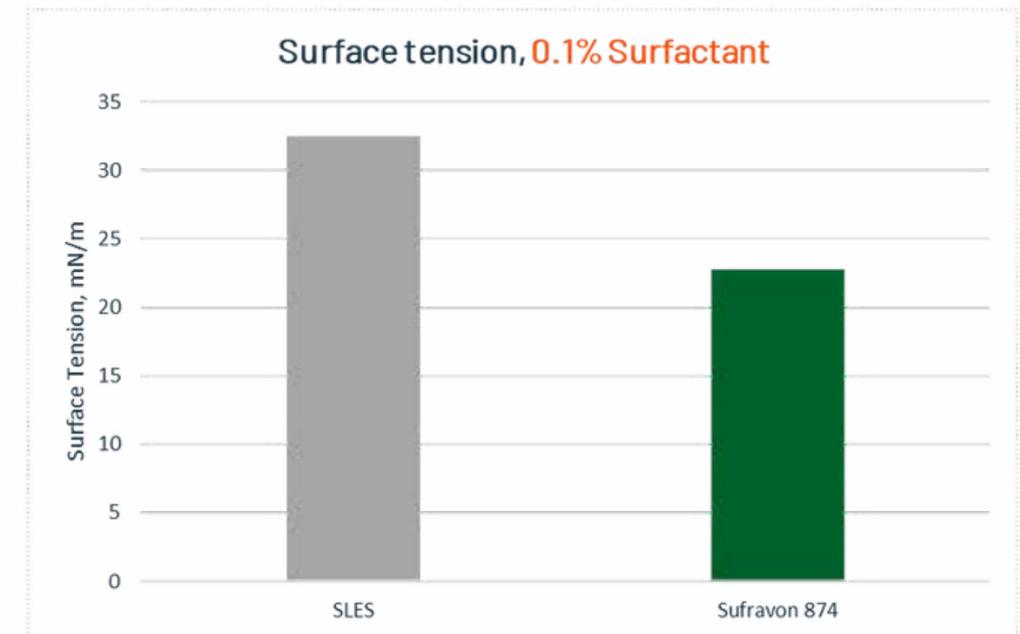


Sufravon 874

Foaming Performance and Surface Tension Comparison



Sufravon 874 has better foaming properties than SLES



Sufravon 874 significantly reduces the surface tension than SLES

Sufravon 874

Rinsability

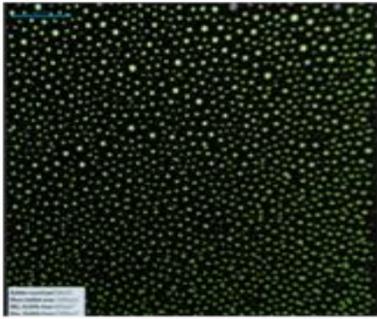
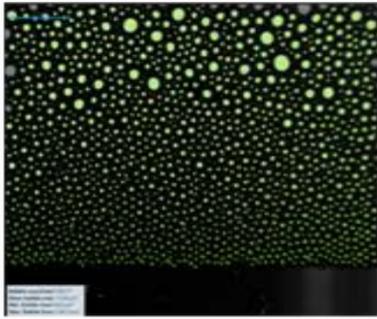
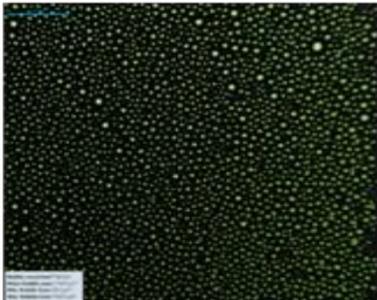
- ✔ SLES is notorious for its poor rinsability
- ✔ Sufravon 874 has better foam decay profile than SLES
- ✔ This is relatable to the better rinsability of Sufravon 874

Sufravon 874

Clinically tested: Hypoallergenic

Sufravon 874 passed the Induction Phase (21-Day RIPT) and the Sensitization Phase followed by Challenge Tests and therefore can be classified as "hypoallergenic" with low probability of inducing allergic reactions to consumers with sensitive skin.

Clinical Trial Management & Testing Associates, Inc.

Initial(5% Surfactant) Bubble Count/ mm ²	After 300 s (5% Surfactant) Bubble Count/ mm ²	Foam Decay
65.53 	58.02 	11.46% (SLES)
86.34 	73.17 	15.25% (Sufravon 874)



Sufravon 874

essential summer fabric care solution



Deep Cleaning Power

Removes tough summer stains like sweat, sunscreen, and dirt



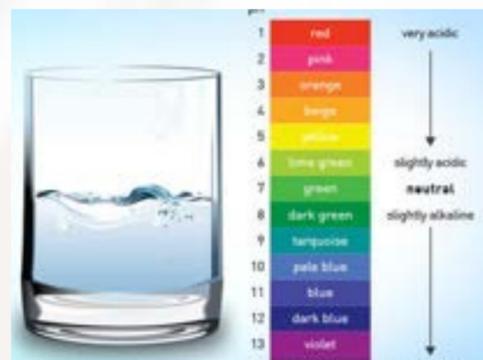
Prevents Redeposition

Keeps clothes bright and fresh, even in hot temperatures



Superior Rinsability

Leaves fabrics residue-free and comfortable to wear.



pH Tolerance & Water Compatibility

Performs effectively in all water conditions.



Fabric & Skin Care

Reduces wear, protects fabric integrity, and is gentle on sensitive skin.

Sufravon 874
Formulated as
Liquid Laundry
Detergent



Natural Liquid Laundry Soap

PHC-PF-24-144

Minimalist yet effective natural liquid laundry soap that cleans fabrics and is an effective stain and soil remover.

Phase	Ingredient	INCI	Function	%
A1	Water	Aqua	Diluent	q.s. to 100
A2	EDTA	EthyleneDiamine TetraAcetic Acid	Chelating Agent	0.10
A3	Sufravon 874	Potassium Cocoate	Surfactant	10.00
A4	Sufrasoft CB30	Cocamidopropyl Betaine	Surfactant	20.00
A5	Sufrasoft AO200	Lauramine Oxide	Surfactant	3.00
A11	Fragrance		Parfum	0.20
A13	Preservative		Preservative	0.10
TOTAL				100.00

Specification	
Appearance	Clear liquid
pH	8.80
Viscosity, mPas	50

Liquid Laundry Combo

PHC-PF-18-001

Liquid laundry with combined power of LABSA and Sufravon 874 as primary surfactants. It enables cost savings in the formulation and higher solid, yet with enhanced rinsability

Phase	Ingredient	INCI	Function	%
A1	Water	Aqua	Diluent	q.s. to 100
A2	EDTA	EthyleneDiamine TetraAcetic Acid	Chelating Agent	0.10
A3	Sufravon 874	Potassium Cocoate	Surfactant	5.00
A4	LABSA	Sodium LABS	Surfactant	15.00
A5	Sufrasoft CB30	Cocamidopropyl Betaine	Surfactant	3.00
A11	Fragrance		Parfum	0.20
A13	Preservative		Preservative	0.10
TOTAL				100.00

Specification	
Appearance	Clear liquid
pH	9.23
Viscosity, mPas	61.2

Sufravon 874

Laundry Stain Removal Test & Whiteness Test



Natural
Laundry Liquid



Combo
Laundry Liquid



Leading Brand 1
Laundry Liquid



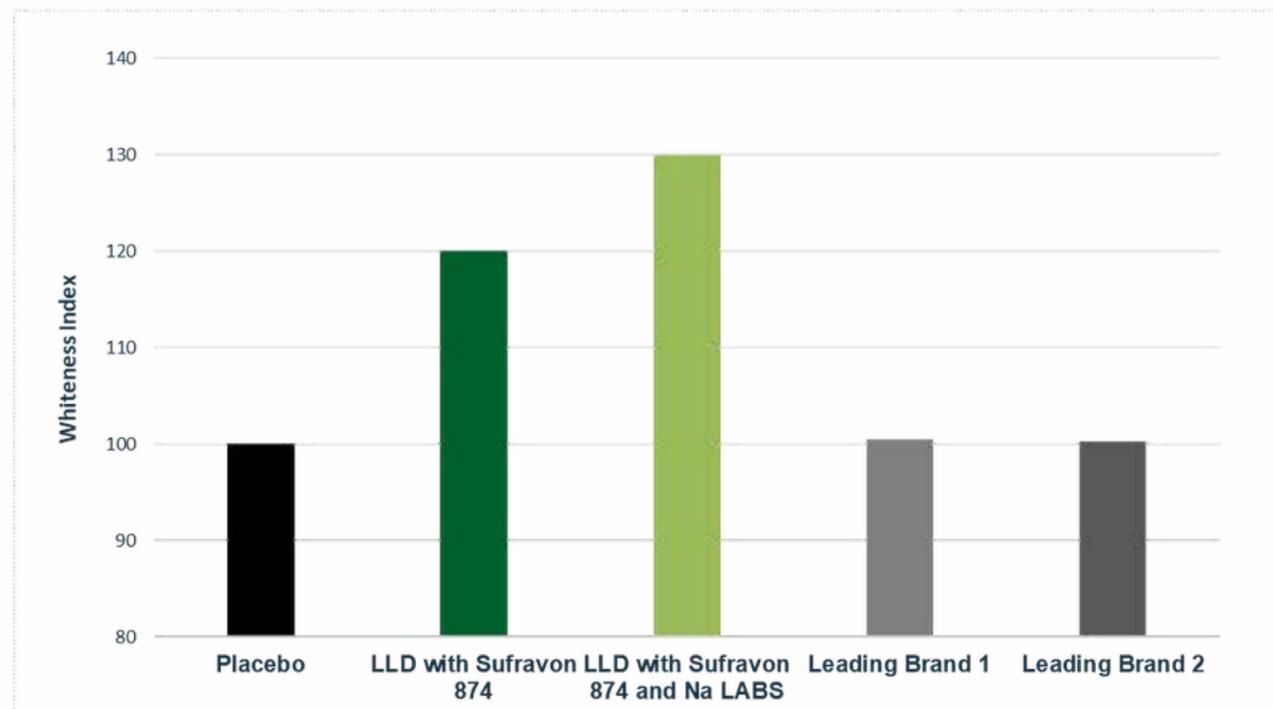
Leading Brand 2
Laundry Liquid



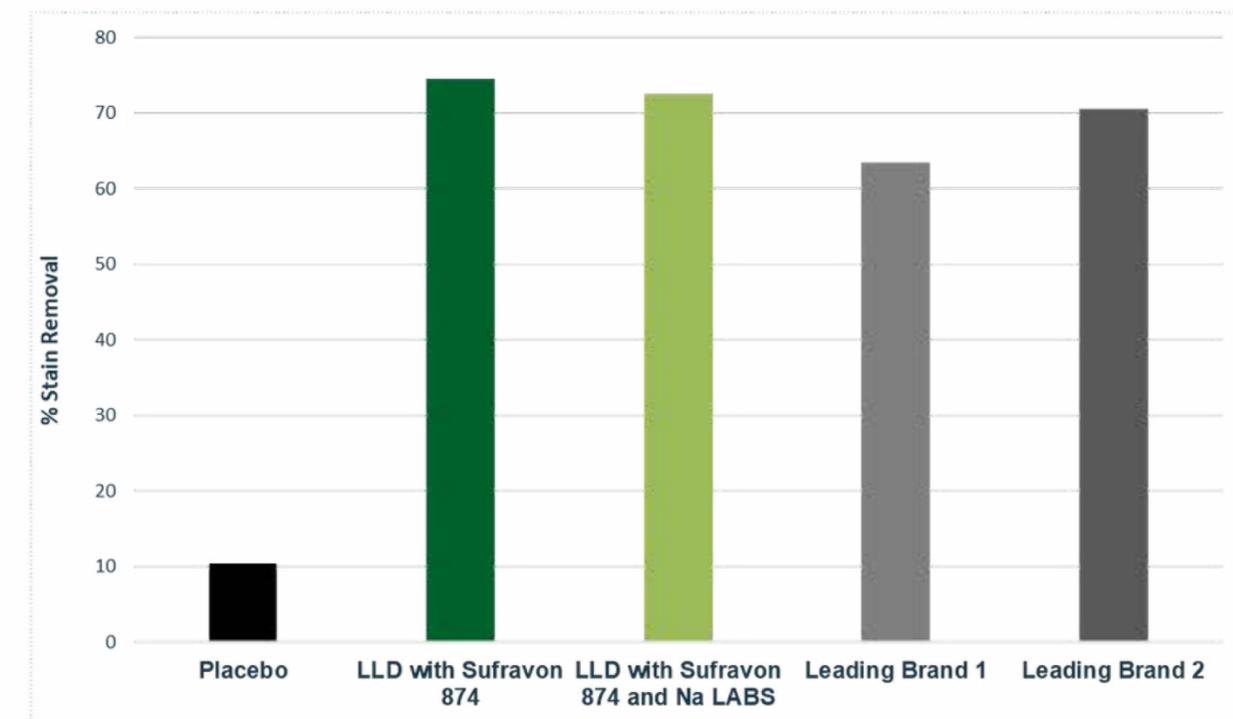
Warwick Stains



Tergotometer



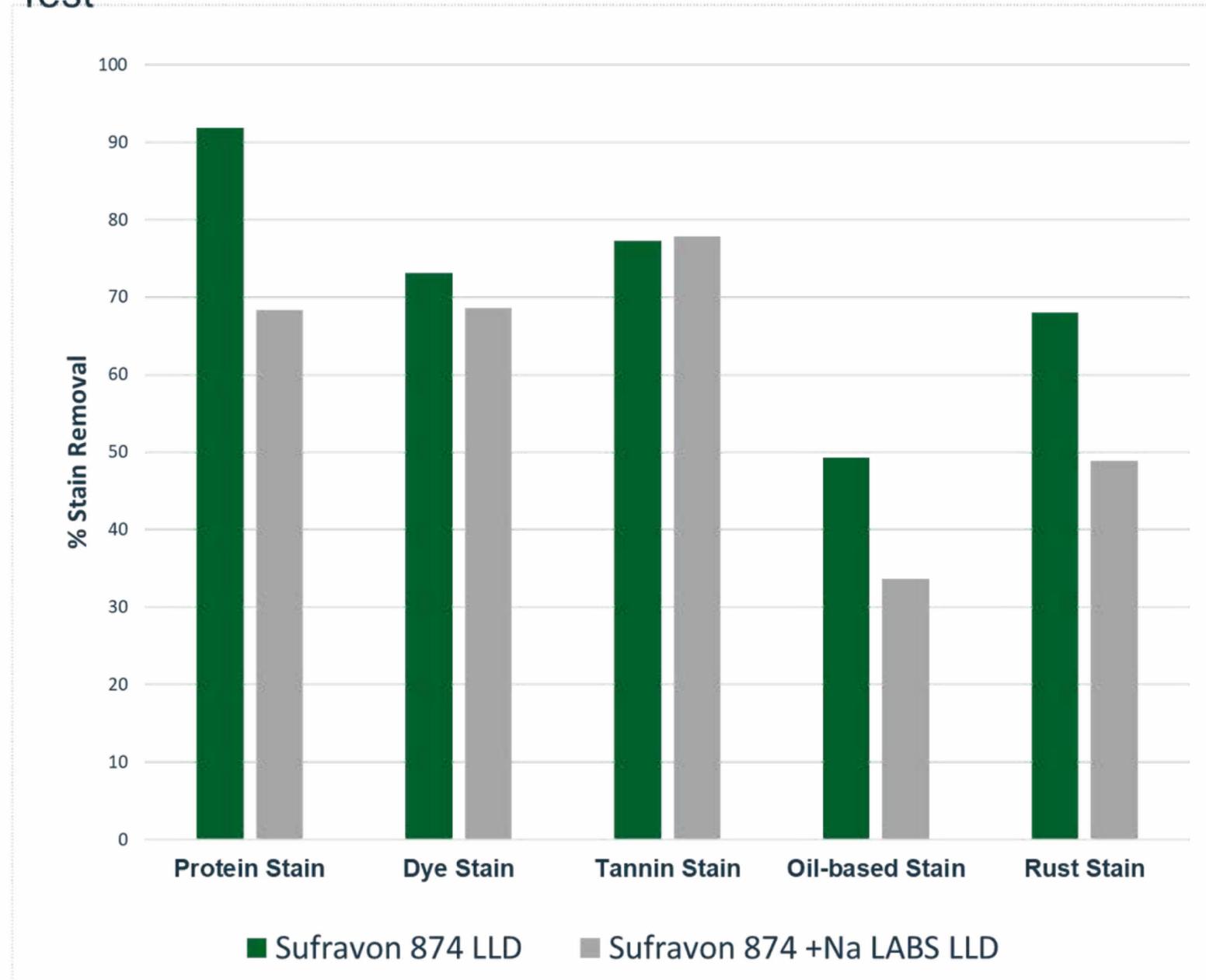
Reference Method: *ASTM D5326-94a*



Reference Method: *ASTM D4265*

Sufravon 874

Natural vs. Combo – Laundry Stain Removal Test & Whiteness Test



Sufravon 874
Laundry Liquid



Sufravon 874 + NaLABS
Laundry Liquid

Stain	% Difference
Protein	25.64
Dye	6.34
Tannin	0.63
Oil-Based	31.69
Rust	31.21

Reference Method:
ASTM D5326-94a
(Color Evaluation using X-Rite's Ci4200 Benchtop Spectrophotometer)

Sufravon 874

Color Fastness Test



Natural

Combo

Leading Brand 1

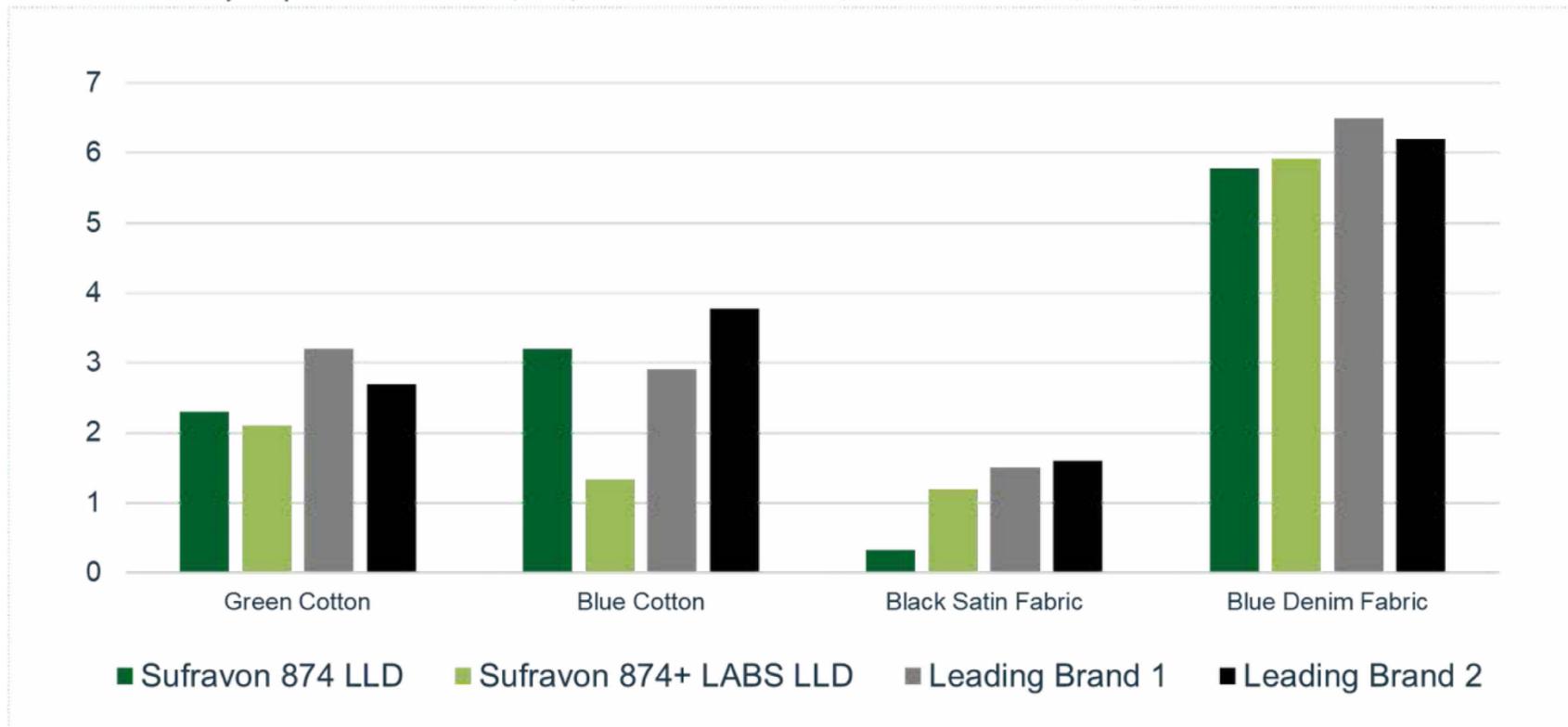
Leading Brand 2

Laundry Liquid

Laundry Liquid

Laundry Liquid

Laundry Liquid



Tergotometer

Reference Method:
 Color Fastness: ASTM D5326-94a
 (Color Evaluation using X-Rite's Ci4200 Benchtop Spectrophotometer)

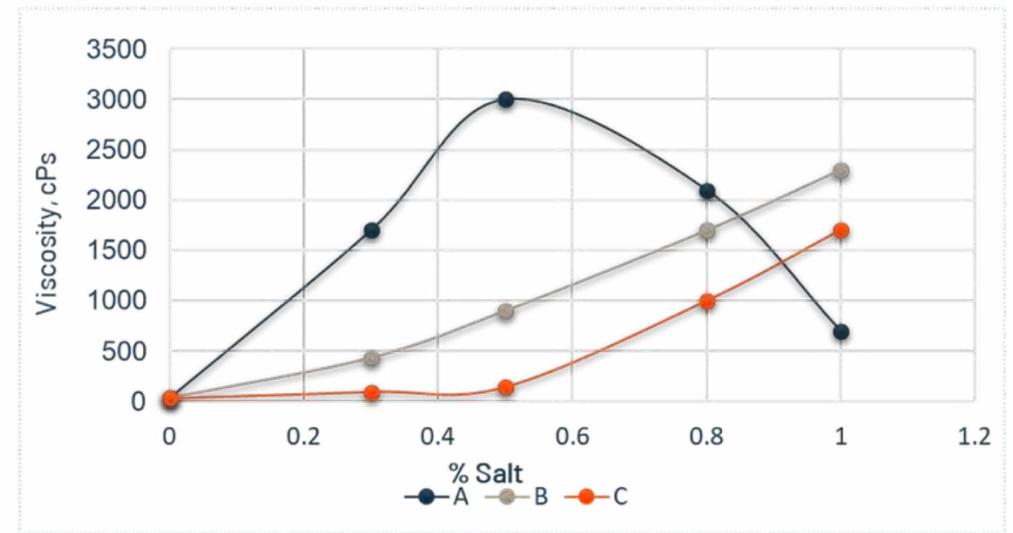
Sufravon 874

Formulation Tips

pH Applicability	Water Hardness	Viscosity Building
Sufravon 874 if applicable at pH >8.5	Sufravon 874 is incompatible with hardwater (>250 ppm)	Sufravon 874 is non-responsive with sodium chloride
Mitigation for lower pH: Combination with amphoteric surfactant: 1:3 ratio	Mitigation: Use of chelating agent	Mitigation Optimum surfactant combination Combination with SLES as co-surfactant

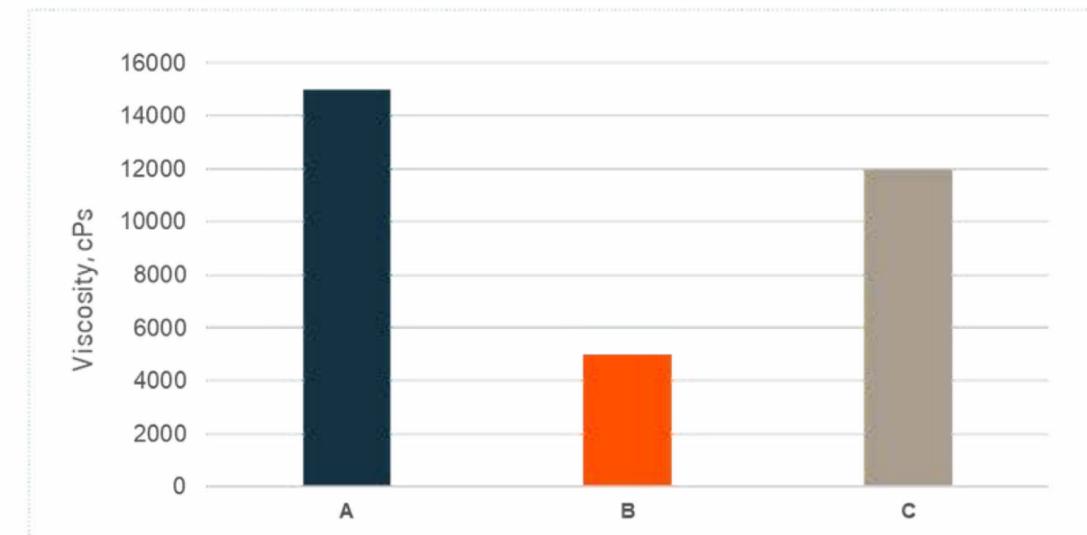
Combo Salt Curve

Raw Materials	A	B	C
Water	80.00	80.00	80.00
LABS	7.00	10.00	5.00
Sufravon 874	8.00	5.00	10.00
Sufrasoft AO200	5.00	5.00	5.00
Total	100.00	100.00	100.00
% Active	12.65%	14.65%	11.32%



Thickening Sufravon 874 Solo

Raw Materials	A	B	C
Water	72.00	80.00	80.00
Sufravon 874	10.00	5.00	7.00
Sufrasoft A0200	15.00	15.00	15.00
Suframide 190	5.00	5.00	5.00
Total	100.00	100.00	100.00
% Active	14.10%	12.10%	12.90%



Key Takeaways

Rising Demand in Summer

Consumers seek high-performance cleaning solutions to combat sweat, grime, and tough summer stains.

Long-Lasting Freshness in Every Wash"

Clothes stay fresh, soft, and comfortable even in hot and humid summer conditions.



The Perfect Summer Combo

Sufravon 874 in liquid laundry detergents and Suфраquat FS in fabric conditioners deliver deep cleaning, superior fabric care, and all-day freshness—making laundry effortless, effective, and summer-ready!

R&D Capabilities

Pushing boundaries in product development through groundbreaking research and development.



Ingredient Innovation

Leading the way in pioneering ingredient breakthroughs for next-generation solutions with sustainability at our core



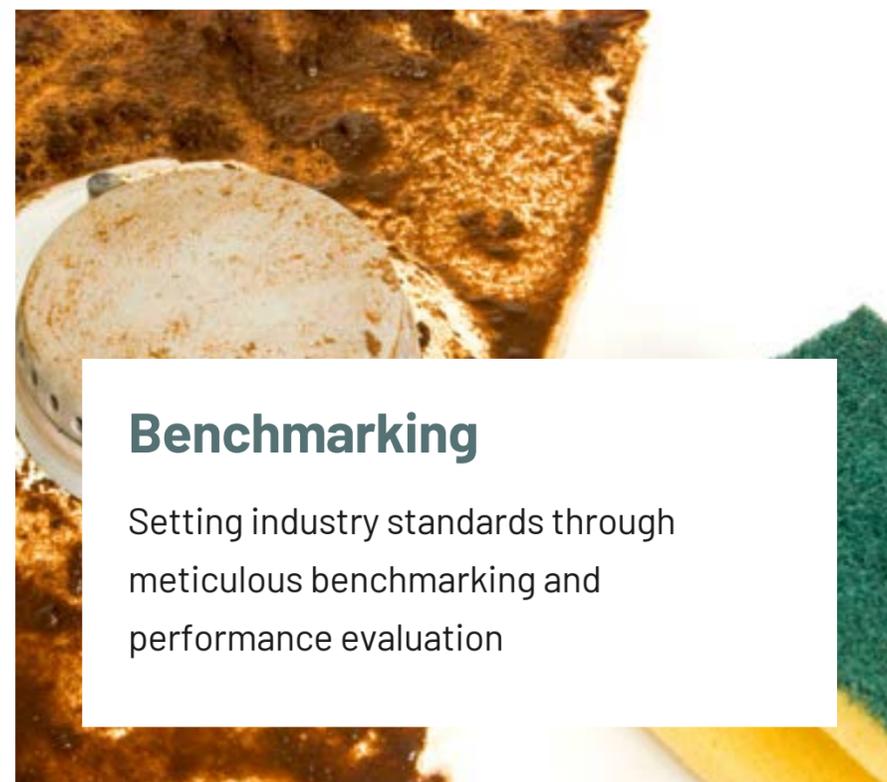
Application & Formulation

Crafting tailored formulations with precision for optimal product performance.



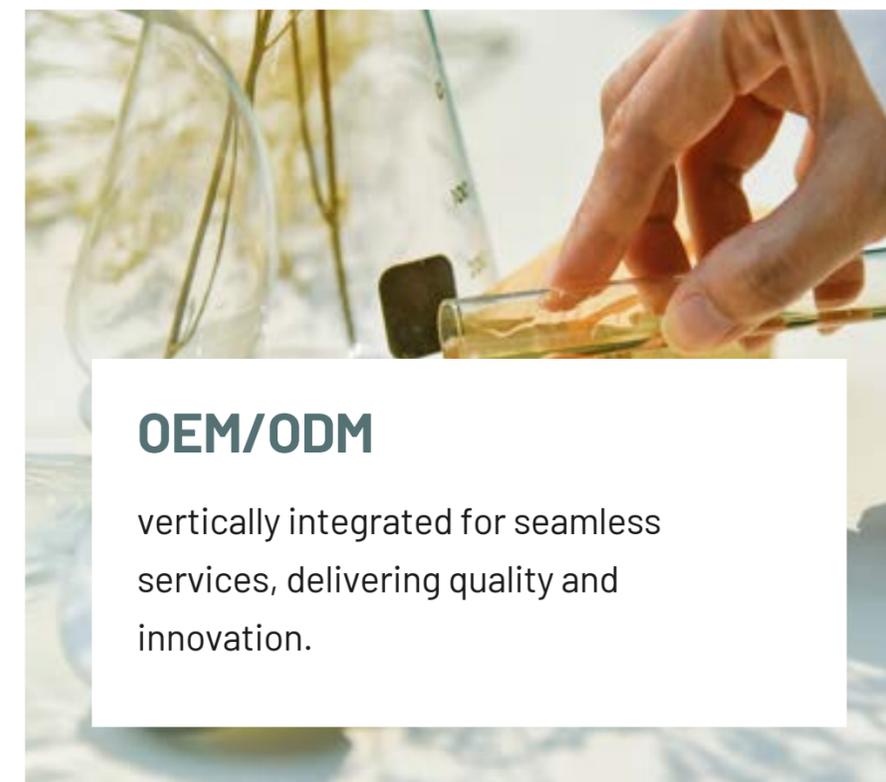
Test Method Development and Validation

Developing and validating robust test methods to ensure accuracy and reliability.



Benchmarking

Setting industry standards through meticulous benchmarking and performance evaluation



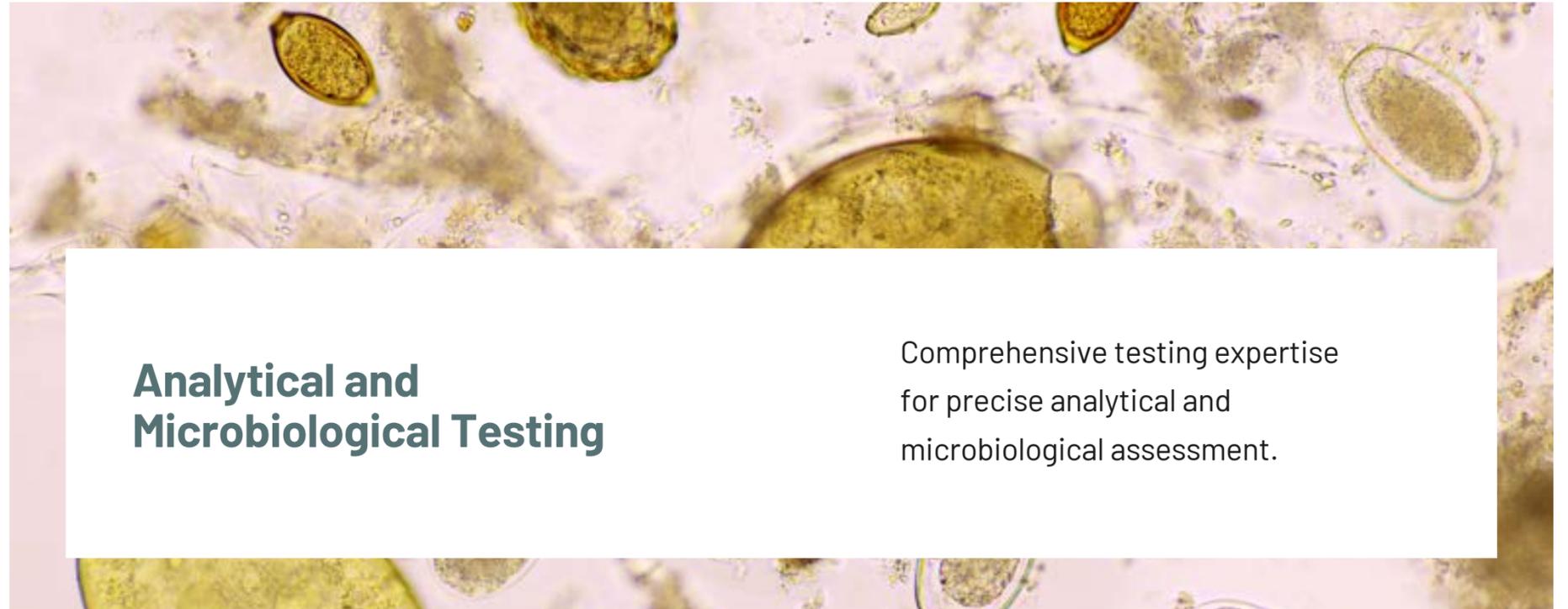
OEM/ODM

vertically integrated for seamless services, delivering quality and innovation.

R&D

Capabilities

Pushing boundaries in product development through groundbreaking research and development.



Analytical and Microbiological Testing

Comprehensive testing expertise for precise analytical and microbiological assessment.



Spectroscopy, Chromatography

Utilizing advanced spectroscopy and chromatography techniques for detailed analysis.



PET, MIC, MBC, Kill Test

Industry-leading protocols for assessing product efficacy and microbial safety.

WET LABORATORY BENCHMARK ANALYSIS



Tergotometer



**Tensile Strength
Machine**



Foam Analyzer



Tensiometer



Rheometer



**Skin & Hair
Analyzer**



**Multi Probe
Adapter Skin
Analyzer**

Ingredient Research Capabilities

Application Capabilities

- ASTM D4009 Foam Stability of Hand Dishwashing Detergents
- D 3050 Measuring Soil Removal from Artificially Soiled Fabrics
- ASTM D4265 Standard Guide for Evaluating Stain Removal Performance in Home Laundering
- Foam analysis
- Surface tension Analysis
- Viscosity Curve Analysis



Thank You!



**Your feedback
is important
to us!**



Clean. Green. Sustainable Ingredients

all from the goodness of coconuts



Mild **SURFACTANTS**

Skin-loving **EMOLLIENTS**

Easy to use **BLEND CONCENTRATES**

Functional **SPECIALTY INGREDIENTS**



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