



DOW

Overcome challenges with performing ingredients tailored for the dish and fabric care markets in the Middle East & Africa

UL Prospector webinar, November 17, 2022

Seek Together™

Speakers



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Agenda

- Market trends and challenges
- SupraCare™ in multi-purpose bars and fabric conditioners
- Multifunctional antifoam granule enabling sustainability benefits
- Manual dishwashing
- Fabric softeners



Market trends & challenges



Our Home Care market in the Middle East in Africa, 2021→2026

Outstanding growth in our horizon and an opportunity to nurture

\$ 17.5bi. → \$ 26.5bi. 8.2% CAGR

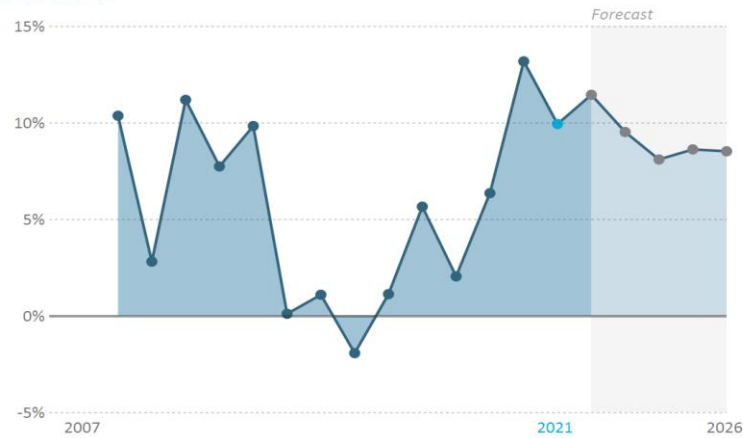
\$ 1.7bi. → \$ 2.6bi.

\$ 1bi. → \$ 1.7bi.

\$ 4.6bi. → \$ 6.8bi.

Sales Performance of Hand Dishwashing in Middle East and Africa
% Y-O-Y Retail Value RSP Growth 2007-2026

9.9%



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Sales Performance of Liquid Fabric Softeners in Middle East and Africa
% Y-O-Y Retail Value RSP Growth 2007-2026

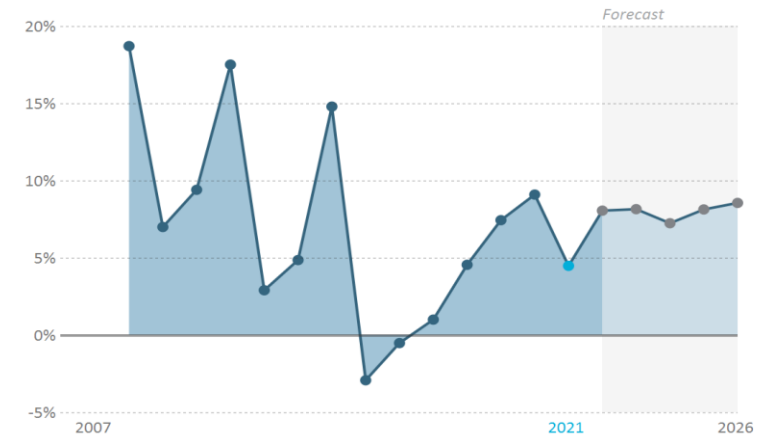
14.0%



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Sales Performance of Powder Detergents in Middle East and Africa
% Y-O-Y Retail Value RSP Growth 2007-2026

4.5%



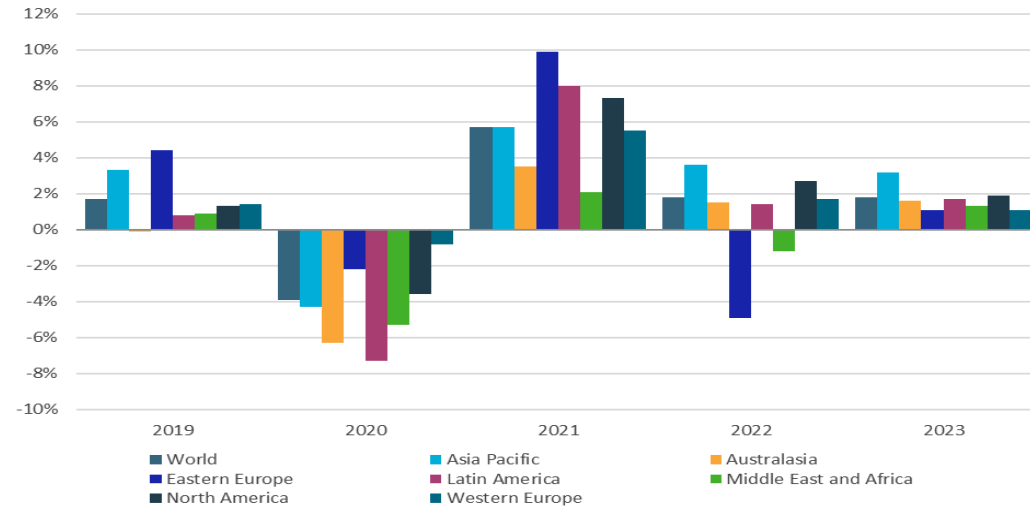
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Higher demand for cost effective goods

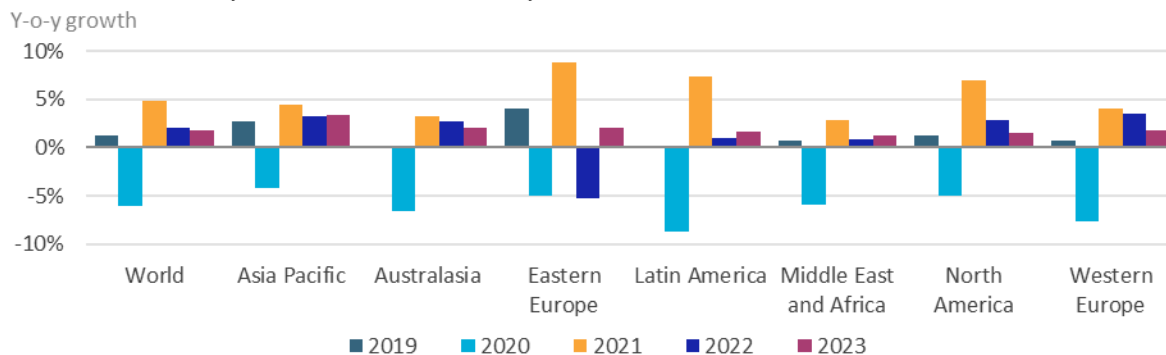
Facing headwinds from inflation to rising energy cost putting pressure for a “smart” consumer choices

Real Per Capita Consumer Income Growth, 2019-2023



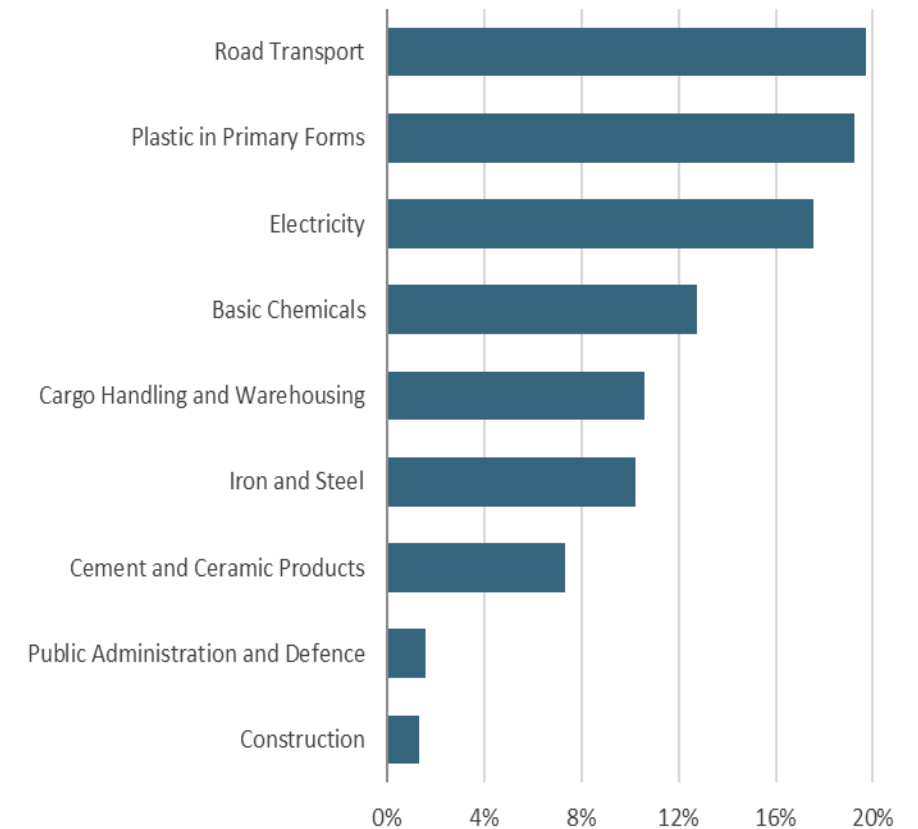
Source: Euromonitor International from national statistics

Growth in Per Capita Real Consumer Expenditure 2019-2023



Global Industries with the Highest Energy Intensity, 2021

Expenditure on energy, % of total costs



Source: Euromonitor International from national statistics



Making our consumers and customers priorities our objective

Automatic laundry



Energy intensive
Lengthy process

Fabric softeners



Expensive
Hard to stabilize
Highly competitive

Multipurpose bar



Quick wear
Cracks
Dryness
Poor aesthetics

Manual dishwash



Highly competitive
Clear product
Highly viscous
Tough on skin



Poll question #1

How do you see your market growing in 2023?

- 0-5%
- > 5%
- Not growing



Poll question #2

For which segment do you anticipate a promising growth in the next 5-10 years?

- Dish Care
- Floor Care
- Fabric Care
- Air Care



Poll question #3

If you were to choose one aspect of a formula generally speaking across all product line to improve, which one would you choose?

- Reduce Cost
- Reduce the number of raw materials
- Improve Overall Quality



SupraCare™ 780 Additive

Sustainable and versatile additive for rheology modification of liquid and structuring of solid detergents



Introduction

Today's trend towards more sustainable detergents translates into a need for biodegradable and biosourced materials that perform well in the application.

One of the approaches to enable more sustainable products relies on high yield additives, such as rheology modifiers or structurants.

Those additives helps to do more with less:

- less ingredients use
- same performance at reduced cost
- concentrated formulations



SupraCare™ 780 Additive – multi-functional & sustainable additive

SupraCare™ 780 is a cellulosic derivative combining rheology and structuring benefits



SupraCare™ 780 Additive in a nutshell:



- High thickening efficiency (yield)
- Highly tolerant to electrolytes
- High compatibility due to non-ionic nature
- Structuring and binding properties
- Foam boosting
- Reduced mushiness in detergent bars
- Derived from natural raw materials
- Inherently, ultimate biodegradable as per OECD 302B



SupraCare™ 780 Additive addresses needs across various applications



Liquid detergents

- Hand dishwash liquid
- Liquid laundry detergents
- Hard surface cleaners
- Fabric conditioners



Detergent bars

- Laundry bars
- Multi-purpose bars
- Non-soap detergent (NSD) bars
- Ecommerce friendly solid formats
- Toilet cistern blocks



Multi-purpose & laundry bars



Detergent bars – affordable detergents

One of the desired cost-saving benefit is around Total Fatty Matter (TFM) reduction

SupraCare™ 780 Additive enables multiple benefits in detergent bars:

- up to 5-10% TFM reduction
- structuring and water binding to enable cost reduction
- improved foam level
- lower rate of wear
- longer lasting bar

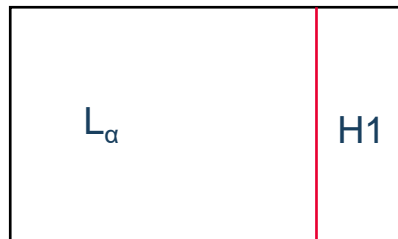
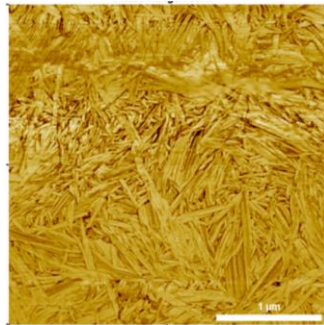
SupraCare™ 780 has a very high yield and works effectively at 0.5% concentration only

Ingredient	Control	Dow Formulation
	% w/w	% w/w
Soap noodles 80:20 (76% active)	85.25	69.25
Sodium Silicate (50%)	8	8
Titanium Dioxide	0.75	0.75
Fragrance and Dyes	1	1
SupraCare™ 780 Additive	0	0.5
Water	5	20.5
Total	100	100



Working hypothesis – structuring with SupraCare™ 780 Additive

Addition of a structurant helps to make the bar lasting longer and with improved use characteristics



Initial phase of the bar:
High volumes of Liquid crystal phase. Lamellar structure.
 $L_\alpha > H1$

Water



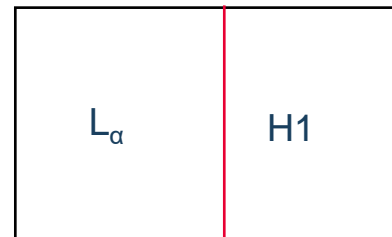
Shrinkage of L_α phase.
Hexagonal liquid crystal + Micellar
Soft/Soggy bar.
 $L_\alpha < H1 + \text{Micellar}$

+ Sodium Silicate



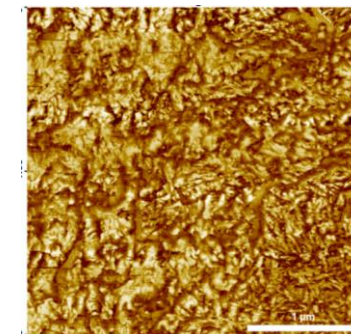
High volumes of Liquid crystal phase
Lamellar structure returns
Brittle bar,
 $L_\alpha > H1$

Structurant
(SupraCare™
780 Additive)



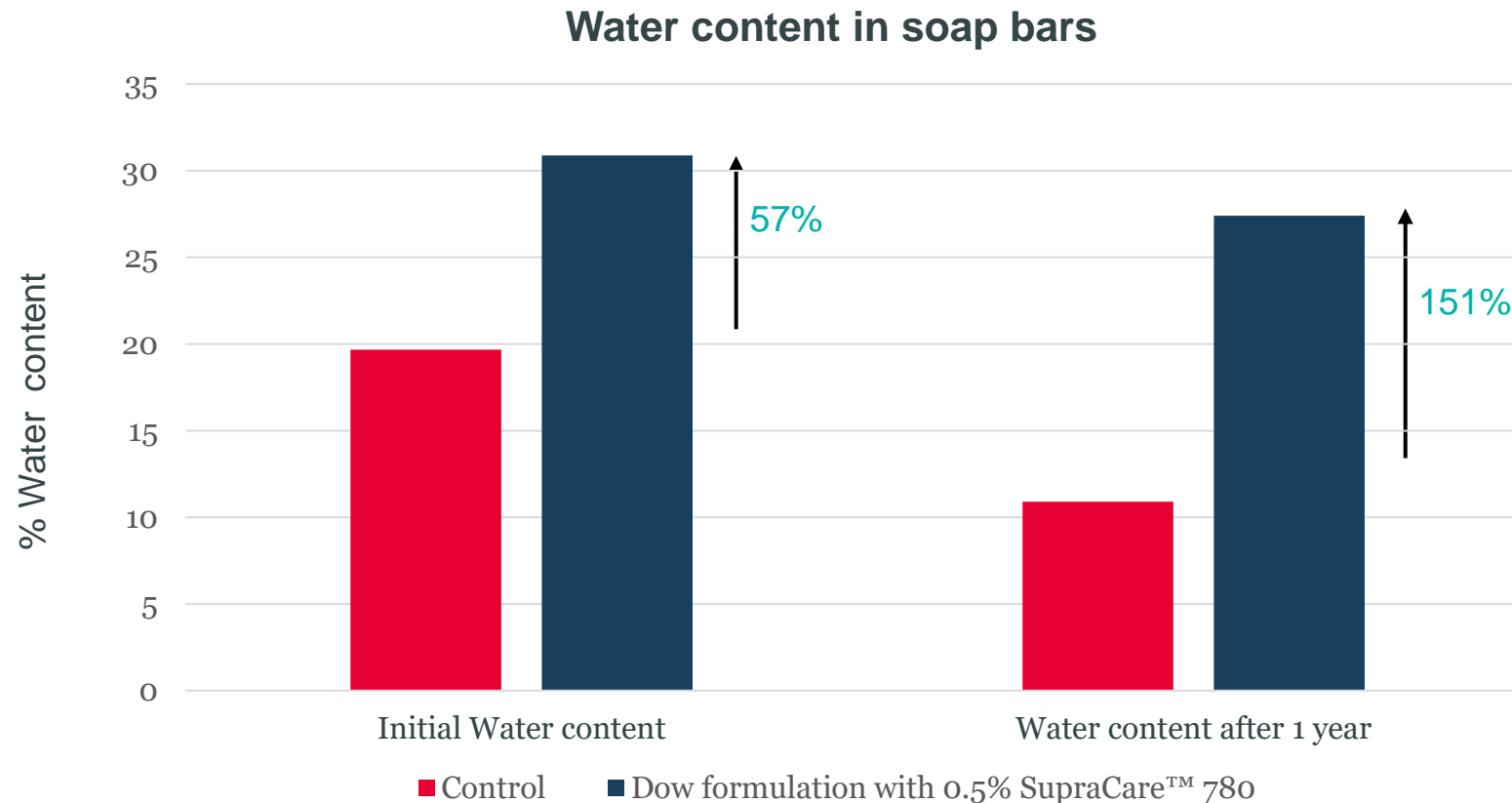
Structured bar
Presence of both Lamellar and Hexagonal liquid crystal phase with interpenetrating polymer networks
 $L_\alpha = H1$

L_α = Lamellar liquid crystal phase
H1 = Hexagonal liquid crystal phase



Water content as a function of storage time

SupraCare™ 780 Additive enables high water structuring and retention



SupraCare™ 780 Additive helps to bind more water while maintaining the bar characteristics.

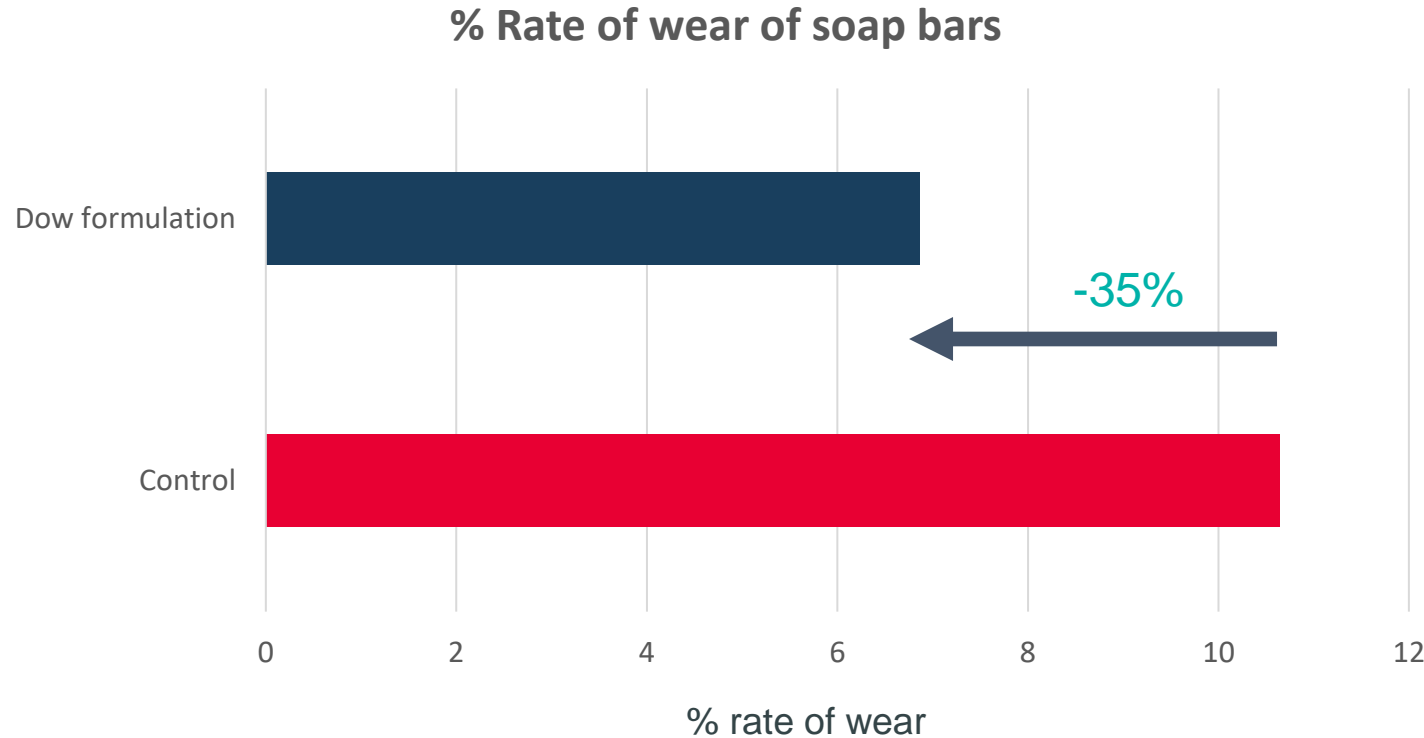
Lower TFM can translate into reduced formulation cost.

SupraCare™ 780 Additive helps to retain more moisture content in the soap bar as a function of storage time.



Rate of wear assessment

SupraCare™ 780 Additive enables longer lasting bars



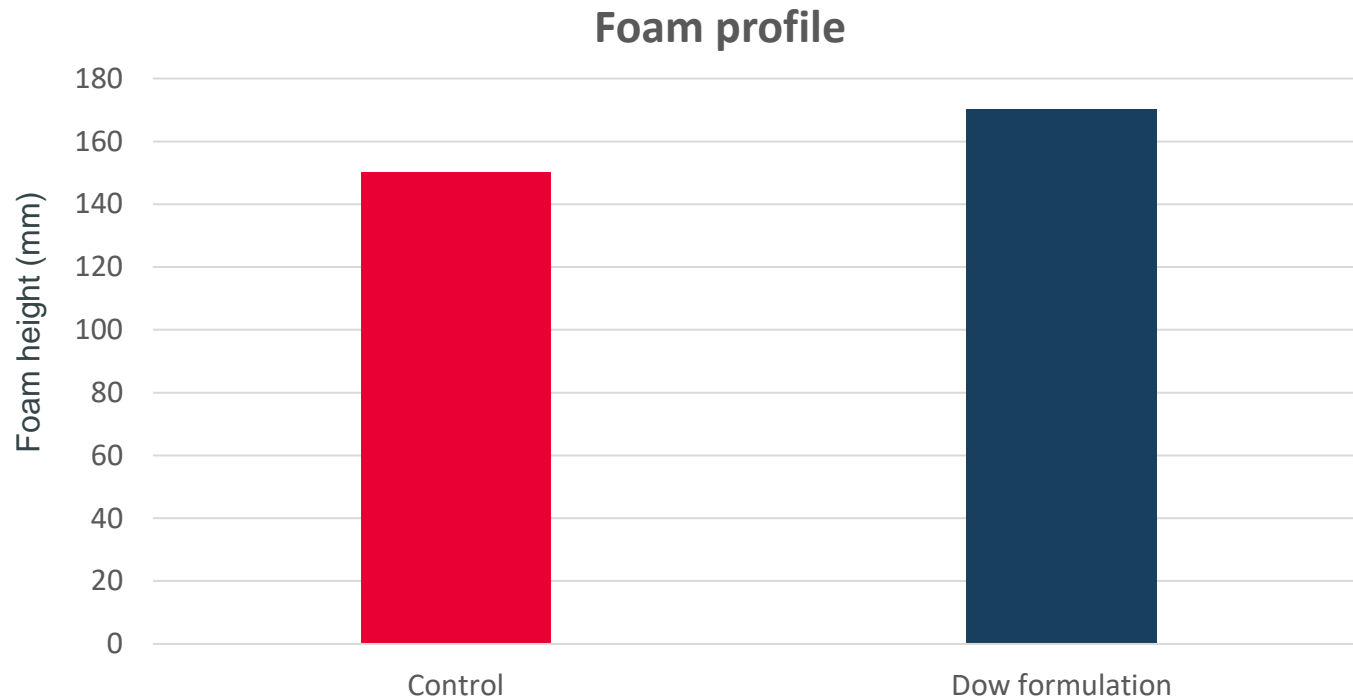
Significant **reduction of the rate of wear** by around 35% was observed, making the bar **more long-lasting**.

SupraCare™ 780 Additive positively impacts the rate of wear helping the consumer to use the bar for longer.



Improving foam profile

SupraCare™ 780 Additive boosts foam height



SupraCare™ 780 Additive helps to generate more foam (by ca 10%).

Foam is one of the most important attributes of the laundry bars connecting a visual cue with an impression of cleaning action.



Avoiding soap bar cracking

SupraCare™ 780 Additive acts as a structurant leaving the bars smooth and without cracks

control bar



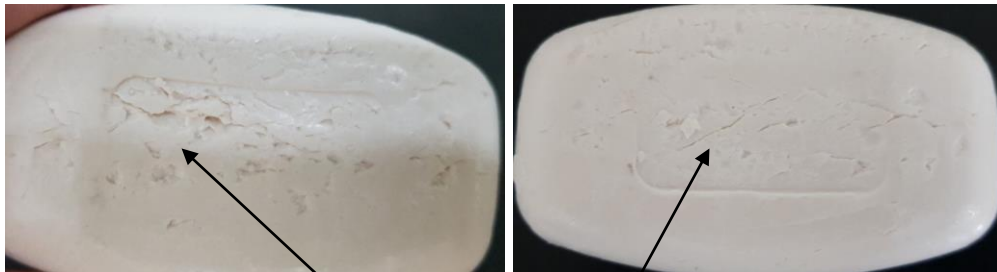
original bars before usage



bar with
SupraCare™
780 Additive



same bars after usage



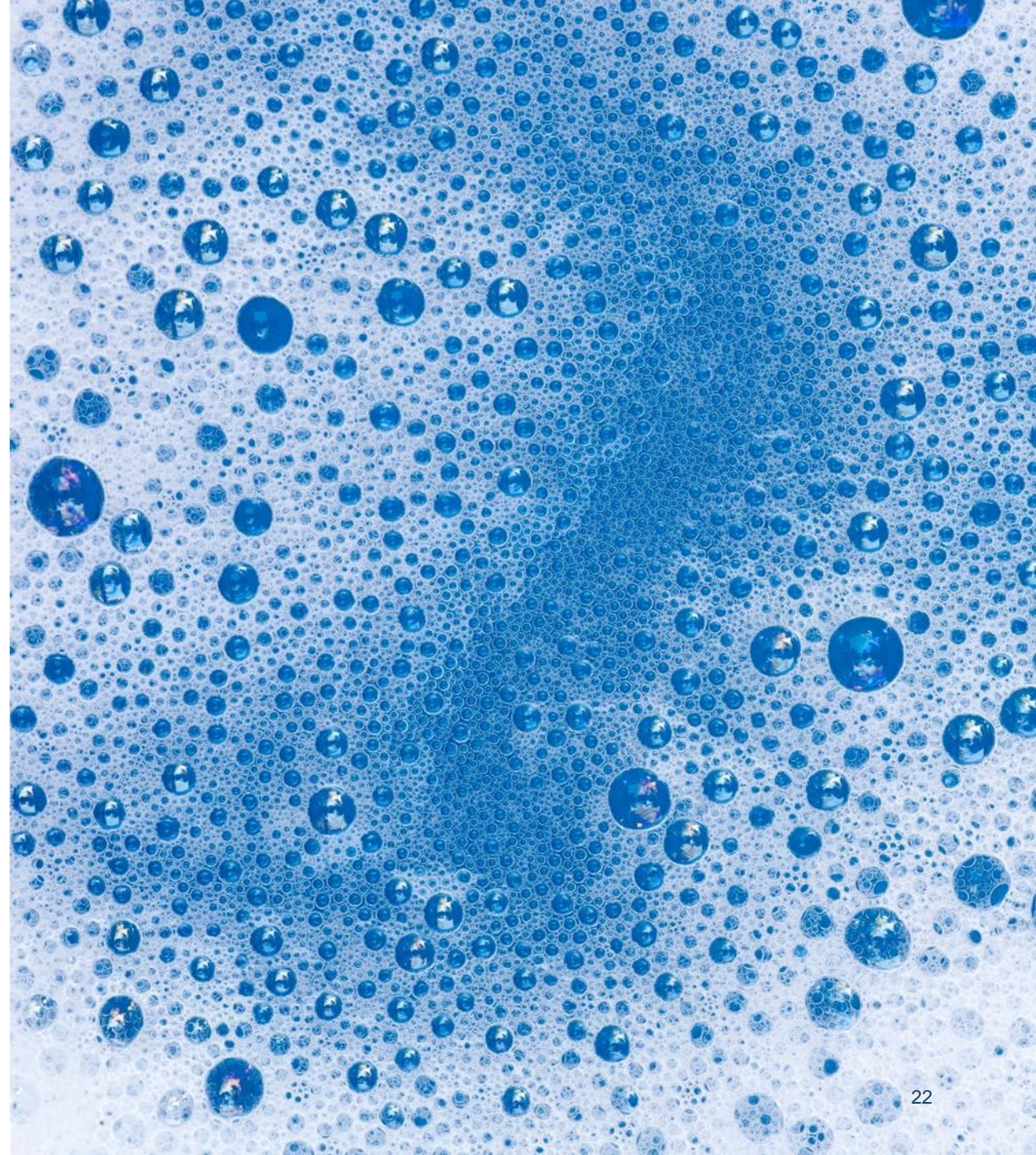
cracking



no visual cracking, smooth bars



Fabric conditioners



SupraCare™ 780 as a Rheology Modifier for Fabric Softeners

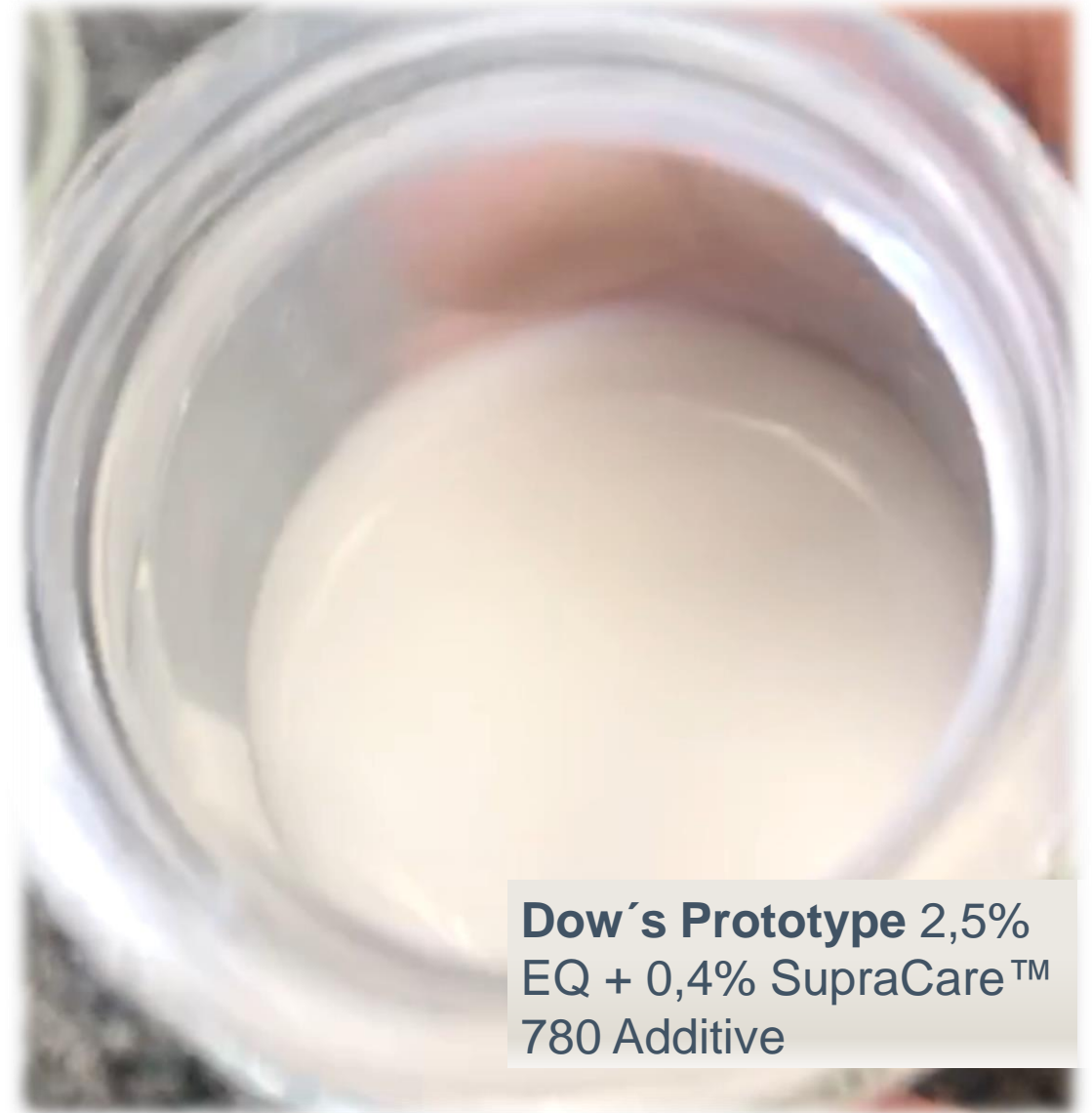
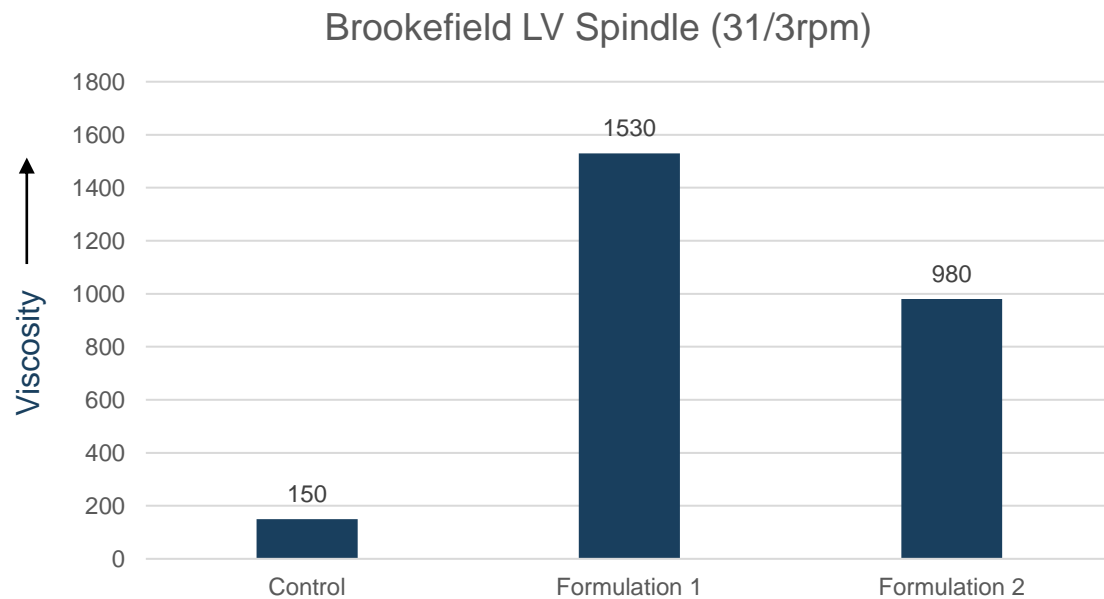
Economy Regular Fabric Softener Formulation with Supracare™ 780 Additive

Material Name	Ingrédient	Control	Formulation 1	Formulation 2
Water	Vehicle	Balance	Balance	Balance
Stepantex VT-90	TEA Esterquat (90%)	2.5	2.5	2.5
DOWSIL™ FM-6620 Emulsion	Softness Booster	0,50	0,50	0,50
SupraCare™ 780 Additive	Rheology Modifier	0	0,40	0,25
Koralone Bioclean	Preservant	0,20	0,20	0,20
Citric or Phosphoric Acid (10%)	pH regulator	enough (pH 2,5-4,5)	enough (pH 2,5-4,5)	enough (pH 2,5-4,5)
Acusol OP 303K	Opacifier Agent	0,25	0,25	0,25



SupraCare™ 780 Additive as a Rheology Modifier for Fabric Softeners

Economy Regular Fabric Softener Formulation with SupraCare™ 780 Additive:



Dow's Prototype 2,5% EQ + 0,4% SupraCare™ 780 Additive



DOWSIL™ GP-4680 Granules



Introducing DOWSIL™ GP-4680 Granules

Multifunctional solution towards more sustainable laundry

DOWSIL™ GP-4680 Granules offer powder laundry detergent manufacturers a **multifunctional solution** to **control foam** during the wash cycle and to ensure **optimal drainage** during spinning. As a result, laundry comes out of the washing machine drier, enabling end-consumer energy savings from shorter tumble-drying or reduced risk of malodor formation after long periods of line-drying.

DOWSIL™ GP-4680 Granules can be applied at a typical dose of 0.2-0.3% in automatic laundry powders and they are easy to dose. They contain active technology that contributes to both foam control and fabric drainage.

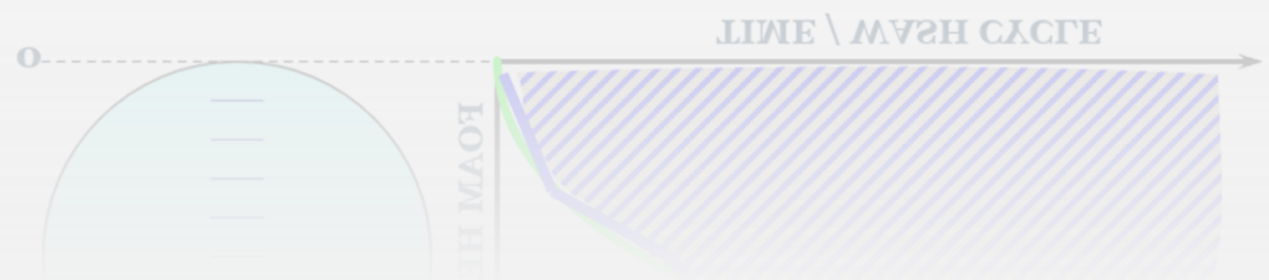
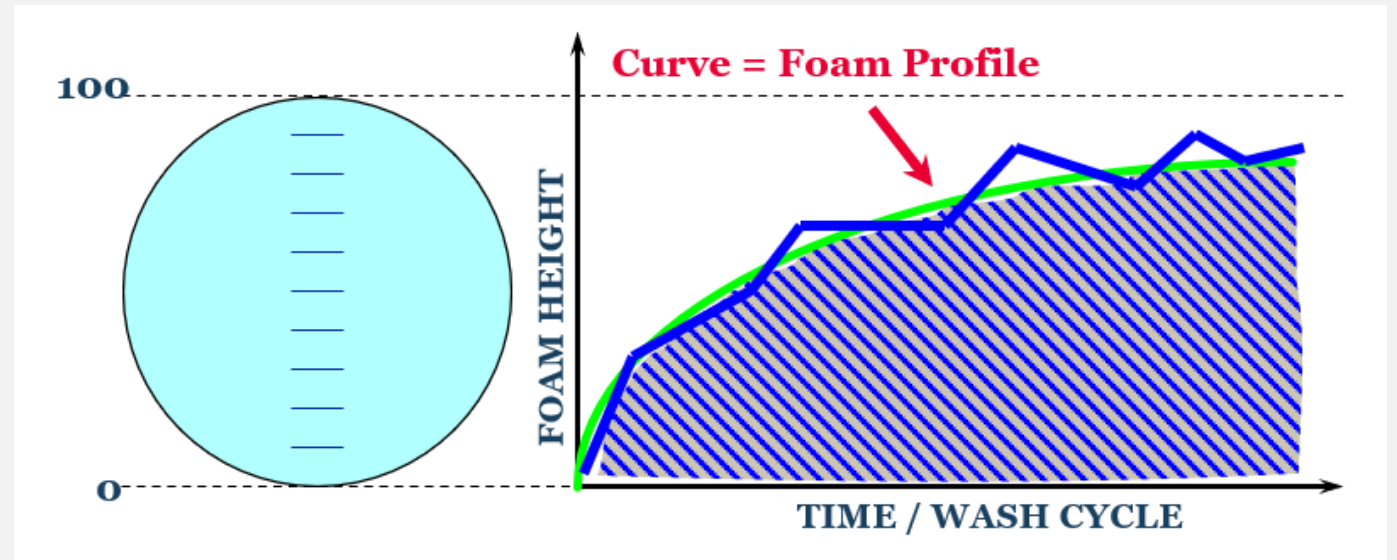


How to measure foam during the washing process?

It is important to manage foam during the washing cycle.

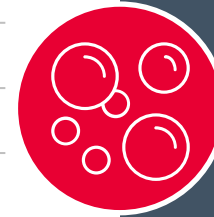
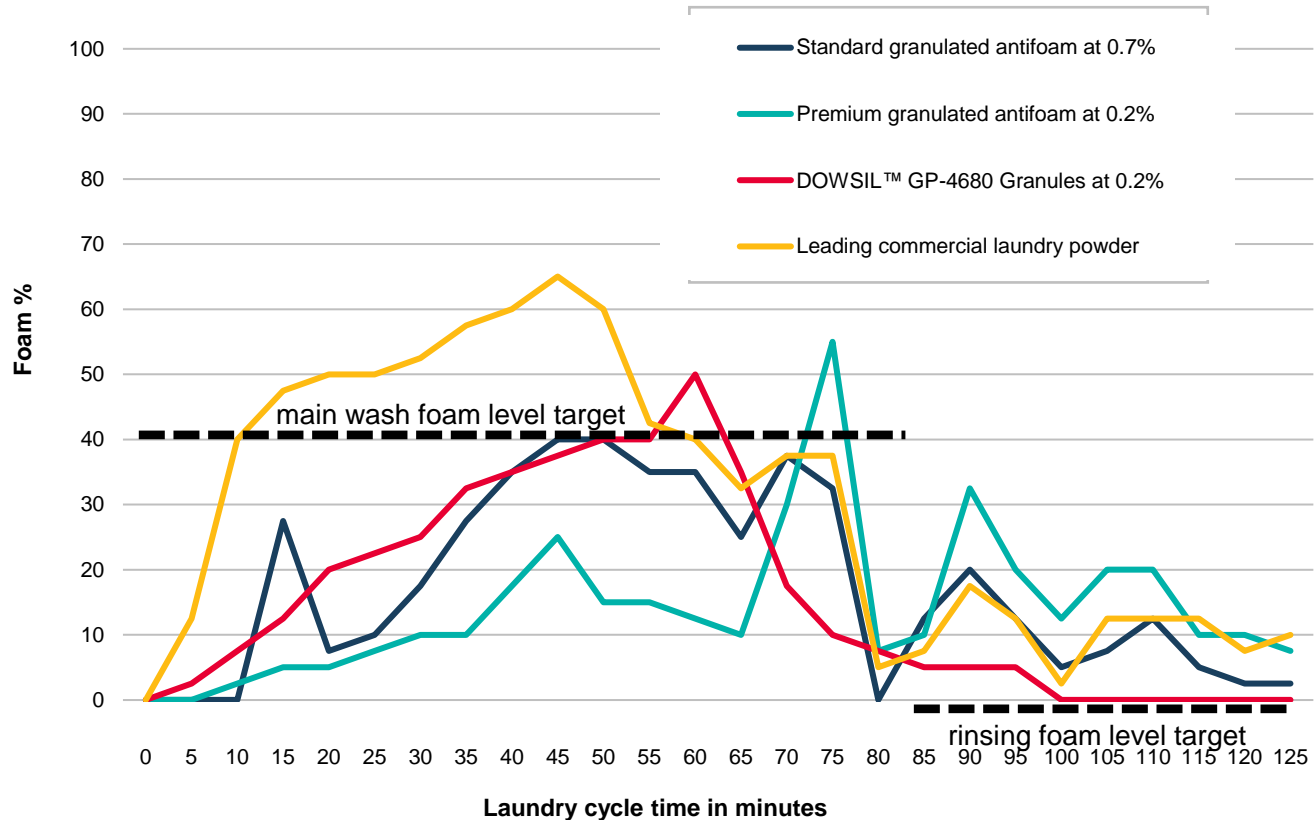
Foam is strongly associated with cleaning by consumers. Therefore, it is important to manage it during the washing cycle, as some foam is desired. However, **excessive foaming** leads to foam overflow from the machine and **should be avoided**.

Foam level is directly measured during the wash cycle as a % of the window the foam covers in a front-loading machine. The **optimal level is up to half of the foam level** observed near the end of the washing cycle.



Efficient foam control along the entire washing cycle

DOWSIL™ GP-4680 Granules control foam during both the main wash and the rinse cycle



DOWSIL™ GP-4680 Granules control main wash foam effectively, compared to both standard and premium granulated antifoams in generic powder, but also compared to the leading commercial product.


Washing conditions

- Washing machine: Miele W1914
- Program @ 40°C, cotton, short cycle (1h49')
- Spinning: 1400 rpm
- Mixed load: 3 kg (10 terry towels and 11 pillowcases)
- Hardness: 15°F
- 125 g detergent powder WFK


Excluding commercial product, all materials tested in generic WFK laundry powder




Reducing carbon footprint along the laundry cycle




Washing




Heating water during the main wash is the major carbon footprint contributor




Rinsing/ Spinning



Rinsing and spinning time typically depend on drainage effectiveness



Line-Drying/ Tumble Dryer



The better the drainage after spinning, the faster the drying

How to make laundry more sustainable?

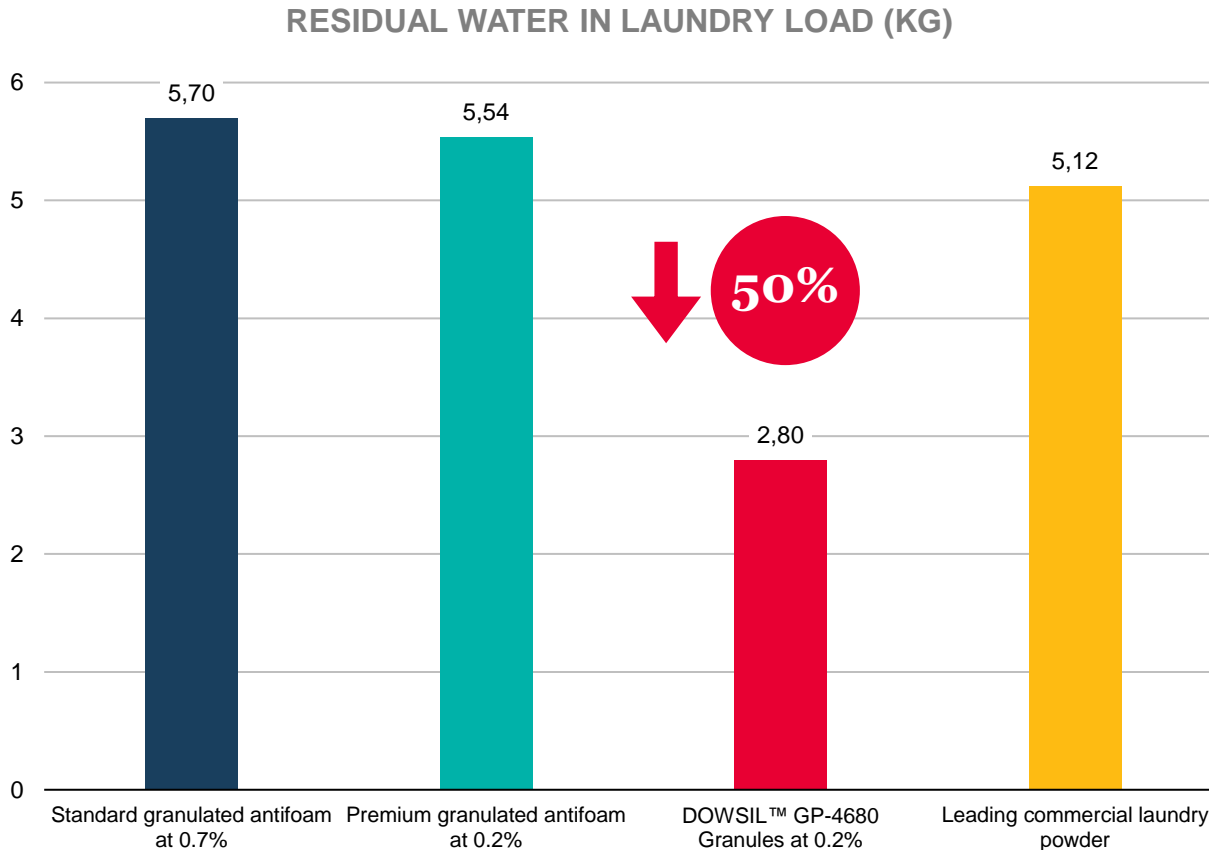


- Enable **cold washing**
- **Reduce cycle time**
- **Improve drainage** to save energy in the tumble dryer
- Enable faster drying to **avoid malodor formation and rewash** after line-drying

Up to 60% of laundry's carbon footprint comes from the in-use phase



Better drainage means less water left in fabrics after spinning



DOWSIL™ GP-4680 Granules ensure optimal drainage and reduce the residual water in laundry after spinning by **up to 50%**.

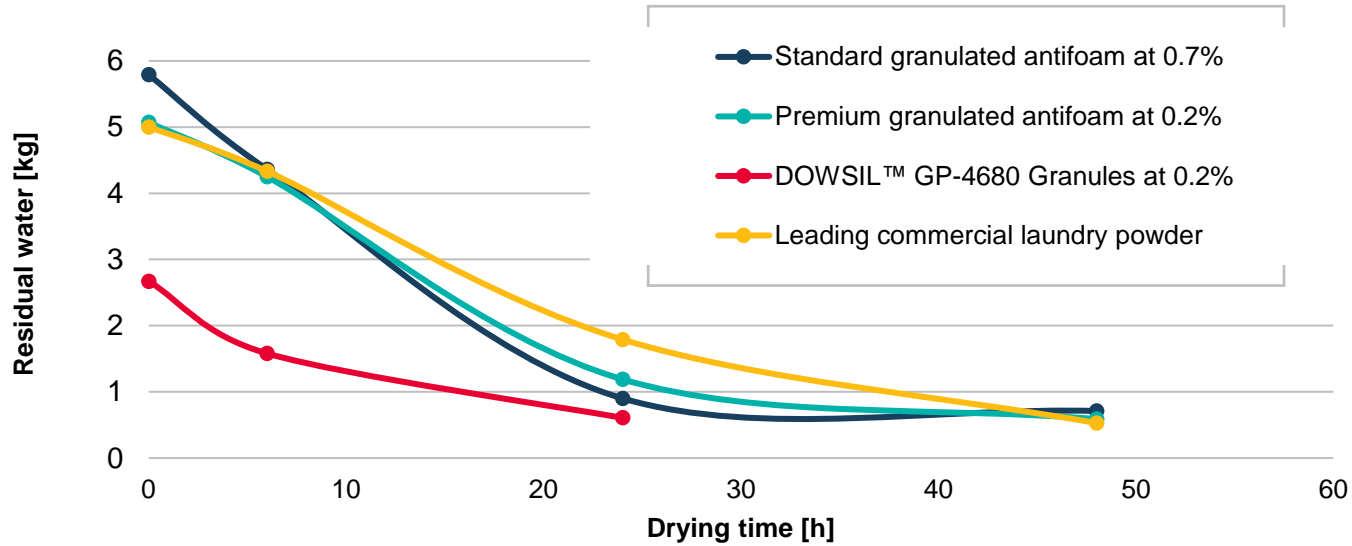
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Excluding commercial product, all materials tested in generic WFK laundry powder



Less residual water reduces risk of malodor formation



RESIDUAL WATER ON FABRIC DURING LINE-DRYING PROCESS, IN KG

	INITIAL	AFTER 6 H	AFTER 24 H	AFTER 48 H
Standard granulated antifoam at 0.7%	5.79	4.36	0.90	0.71
Premium granulated antifoam at 0.2%	5.07	4.25	1.19	0.59
DOWSIL™ GP-4680 Granules at 0.2%	2.67	1.58	0.61	-
Leading commercial laundry powder	5.00	4.33	1.79	0.53

Conditions for line drying: Temperature: 20°C +/- 2°C | RH: 45-55%

Improved drainage makes the laundry dry quicker and **reduces risk of malodor formation and an extra rewash.**

With **DOWSIL™ GP-4680 Granules**, the laundry dries up to **50% faster**, which is relevant for humid climates where clothes take more time to dry.



Optimized drainage drives time and energy savings

DOWSIL™ GP-4680 Granules enable consumer-relevant benefits such as **faster drying in the tumble dryer**, helping significantly reduce energy consumption.



LAUNDRY CYCLE (WASHING, RINSING & SPINNING)

TUMBLE DRYER

Product	LAUNDRY CYCLE (WASHING, RINSING & SPINNING)			TUMBLE DRYER		
	Energy for the laundry cycle (kWh)	Laundry cycle time (h)	Residual water after spinning (kg)	Energy (kWh)	Drying time (h)	Residual water (kg)
Standard granulated antifoam at 0.7%	1.02	2.08	5.70	1.55	2.85	0.68
Premium granulated antifoam at 0.2%	1.04	2.08	5.54	1.57	2.85	0.65
DOWSIL™ GP-4680 Granules at 0.2%	0.97	2.00	2.80	0.69	1.33	0.71
Leading commercial laundry powder	1.06	2.08	5.12	1.34	2.22	0.54

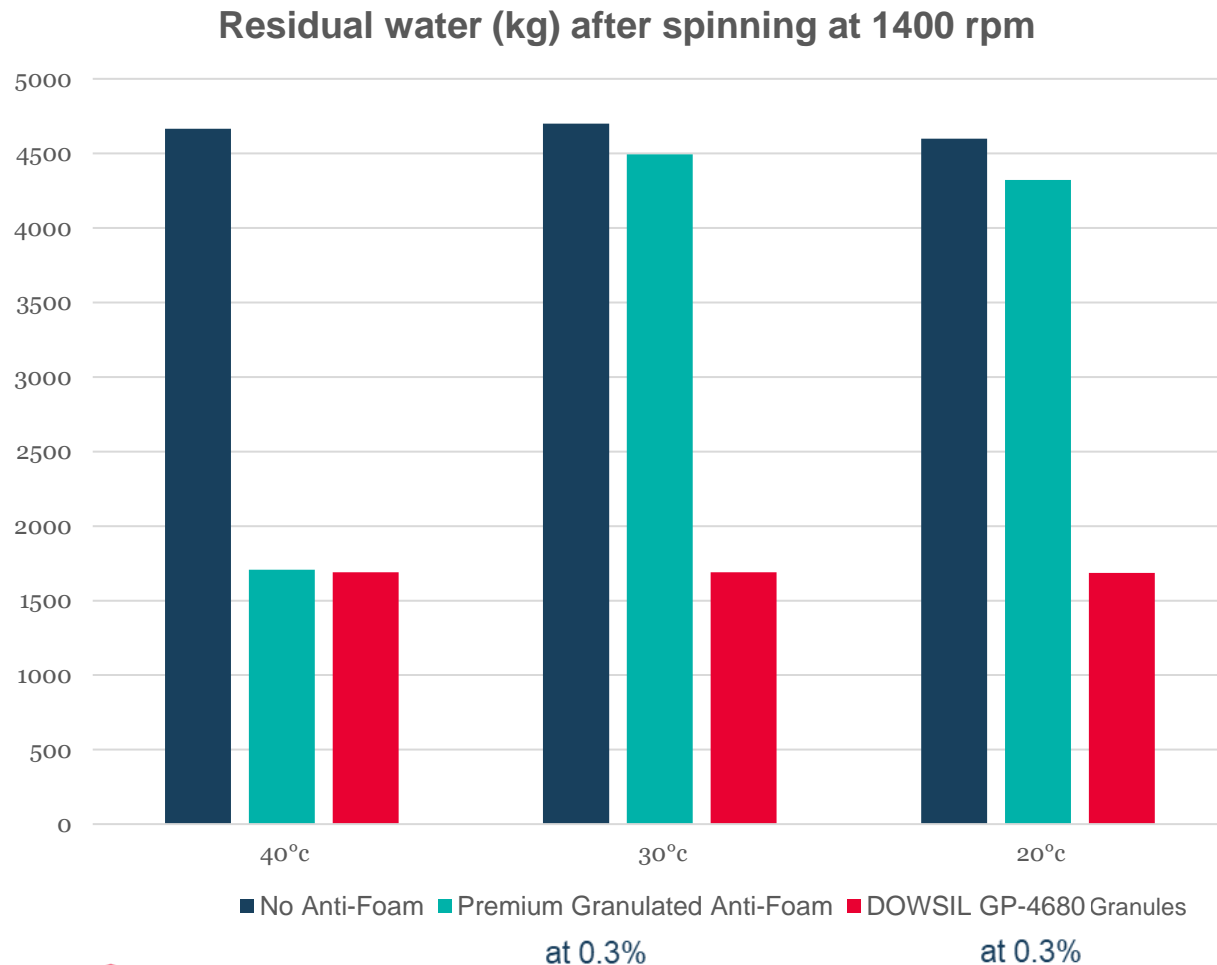
Up to 50% reduction of energy and time needed to dry the laundry

Excluding commercial product, all materials tested in generic WFK laundry powder



Ensuring optimum drainage in different laundry conditions

DOWSIL™ GP-4680 Granules works along broad spectrum of washing conditions



DOWSIL™ GP-4680 Granules delivers the **drainage benefit across temperatures** unlike incumbent materials that can lose drainage performance under cold washing conditions



DOWSIL™ GP-4680 Granules – Summary

Making laundry more sustainable often requires multifunctional products

DOWSIL™ GP-4680 Granules combine the main wash **antifoam role** with the **optimized drainage** to further drive consumer-relevant benefits:

- **saving energy and time** in the tumble dryer
- **avoiding malodor formation and rewash** after line-drying



Typical properties of DOWSIL™ GP-4680 Granules:

- **Appearance:** off-white, free-flowing granules
- **Average particle size:** 400-800 microns
- **Bulk density:** 800-1,100 g/l



Manual dishwashing



Middle East and Africa consumer key needs

Rheology

Cleaning/
mileage

Sensory



SupraCare™ 760/780 Additive at a glance

SupraCare™ 760/780 Additive Snapshot

- Derived from natural raw materials
- Thickens multiple detergent formulations
- Non-ionic: compatible with majority of raw materials typically used in detergents
- Salt tolerance: compatible with high levels of salts and electrolytes
- Water structuring and binding benefits in detergent bars
- Biodegradable

	SupraCare™ 760 Additive	SupraCare™ 780 Additive
Solids level	100%	100%
Appearance	White to off white free flowing powder	White to off white free flowing powder
pH, 1% Solution	7	7
1% solution in water, Haake Rotovisko RV 100, shear rate 2.55 s ⁻¹ , 20°C	7400 to 9400 mPa·s	12000 to 16000 mPa·s
Recommended use level	0.3% up to 1% as is	0.3% up to 1% as is

Applications:

- Hand dishwashing liquids
- Liquid laundry detergents
- Hard surface cleaners
- Laundry/multi-purpose Bars



ACUSOL™ 823 ER Polymer at a glance

ACUSOL™ 823 ER Polymer Snapshot

- Can be thickened instantaneously with any alkali
- Transparent, clear formulations
- Broad compatibility with surfactants (anionic/non-ionic)
- Efficiency over a broad pH range
- Pseudoplastic (shear thinning) rheology & maintains higher viscosity for higher shear rates.
- Easy to handle in manufacturing

ACUSOL™ 823 ER Polymer

Solids level	29.5 % to 30.5%
Appearance	White milky emulsion
pH	2.1 – 3.5
Recommended use level	0.5% up to 3% as is
Viscosity (as supplied)	≤ 25 cps

Applications:

- Hand dishwashing liquids
- Liquid laundry detergents
- Hard surface cleaners
- Auto dishwashing gels



ACUSOL™ 445N Polymer at a glance

ACUSOL™ 445N Polymer Snapshot

- Prevents scaling on surfaces and fabrics by inhibition of crystal growth and dispersion of precipitates and soil
- Enhanced bleach stability by binding heavy metals
- Efficiency over a broad pH range
- Easy to handle in manufacturing

ACUSOL™ 445N Polymer

Solids level	44-46%
Appearance	Clear solution to slightly yellow Liquid
pH	6.5-7.5
Recommended use level	1% to 3% as is
Viscosity (as supplied)	400 – 1400 cps

Applications:

- Powder laundry detergents
- Hand dishwashing liquids
- Liquid laundry detergents
- Hard surface cleaners
- Automatic dishwashing detergents
- Bleach cleaners



Mileage test

Test protocol

Soil composition:

Soil type	Weight (gram)
Beef fat	4.7
Vegetable fat	4.7
Margarine	4.7
Butter	4.7
Lard	4.7
Cold cream	4.7
Sunflower oil	4.7
Olive oil	4.7
Skim milk powder	6.3
Wheat flour	18.8
Color agent	0.2
Water	37.1

Cleaning conditions:

5L Tap water

Temperature 45°C (beginning of test), Temperature 35°C (end of test)

Water Hardness 18°

0.4g/L hand dishwash detergent

1. Soil Recipe

5g of soiled is deposited over plates.

Soil composition*



3. Foam level

Foam level on the water is visually assessed

When the foam layer disappeared, the test is finished.

Number of plates are recorded.



2. Washing

Plates and hands are completely immersed in the wash liquor

The soiled plates are washed with circular movements of the brush.

Plates are rinsed with tap water and placed on draining board.

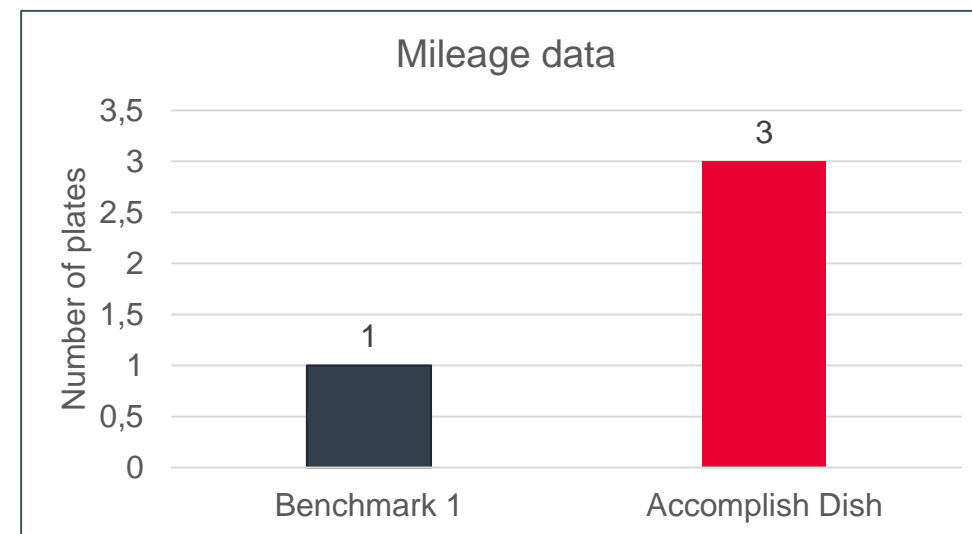
Allow 15S between each plate.

Foam level on the water is visually assessed.



Low cost hand dishwashing liquid

Material/ Supplier	% wt	Description
Marlon AS 3 / Sasol	7.0%	Surfactant - Sodium alkylbenzene sulfonate (90%)
Texapon N70 / BASF	3.0%	Surfactant - Sodium Lauryl Ether Sulfate (70%)
Empigen BS/FA / Huntsman	0.3%	Surfactant - Cocoamidpropylbetaine (30%)
ACUSOL™ 823 ER Polymer / Dow	0.3%	Rheology modifier
ACUSOL™ 445N Polymer / Dow	1.2%	Dispersant
SupraCare™ 760 Additive / Dow	0.3%	Rheology modifier
Sodium Hydroxide (40%)	~2.4 %	Neutralizer – QS pH 8
Stepanate SXS-E (40% solution)/ Stepan	4%	Sodium Xylene Sulfonate
Magnesium sulfate	0.8%	
Sodium chloride	0.97 %	
Unicert Yellow 08005-J	0.2%	dye
Givaudan – lemon Boost	0.1%	Fragrance
Demin water	~79%	QS 100%



Mileage testing conditions - IKW test method
 6.7g Low Fat Soil/plate
 4g detergent/ 5l water at 35°C and 17DH

Properties	Results
Appearance	Clear yellow gel
Viscosity RV DVII CP52 20RPM	2300 cps
pH	~8



Benchmark 1: ~9-10% active – Viscosity = 1235 cps (RVDVII CP52 20 RPM)
 Leading brand from Egypt Market

SupraCare™ 425 Additive at a glance

SupraCare™ 425 Additive Snapshot

- Excellent at anti-spotting benefits & anti-film properties
- Delivers smooth after skin feel
- Acts as foam booster
- Exhibits excellent cleaning performance
- Allows formulators to design superior hand dish washing liquids
- Exhibits clear formulations
- High ionic strength compatibility.

	SupraCare™ 425 Additive
Solids level	100%
Appearance	White free flowing powder
pH, 5% Solution	8 to 10
Viscosity at 5% aqueous solution (Brookfield RV, Spindle 2, RPM2)	4500 to 8800 mPa·s
Recommended use level	0.2% up to 0.8% as is

Applications:

- Hand dish washing liquids
- Low surfactant content hand dish liquids
- Rinse aids



Skin sensorial benefits

Test protocol



1. Cleaning conditions

6 L of Tap Water
Temperature 40°C
Water Hardness 18°
2.5 ml/L Hand Dish formulation



2. Cleaning

Place 1 hand in each batch for 10s
Assess softness in wash



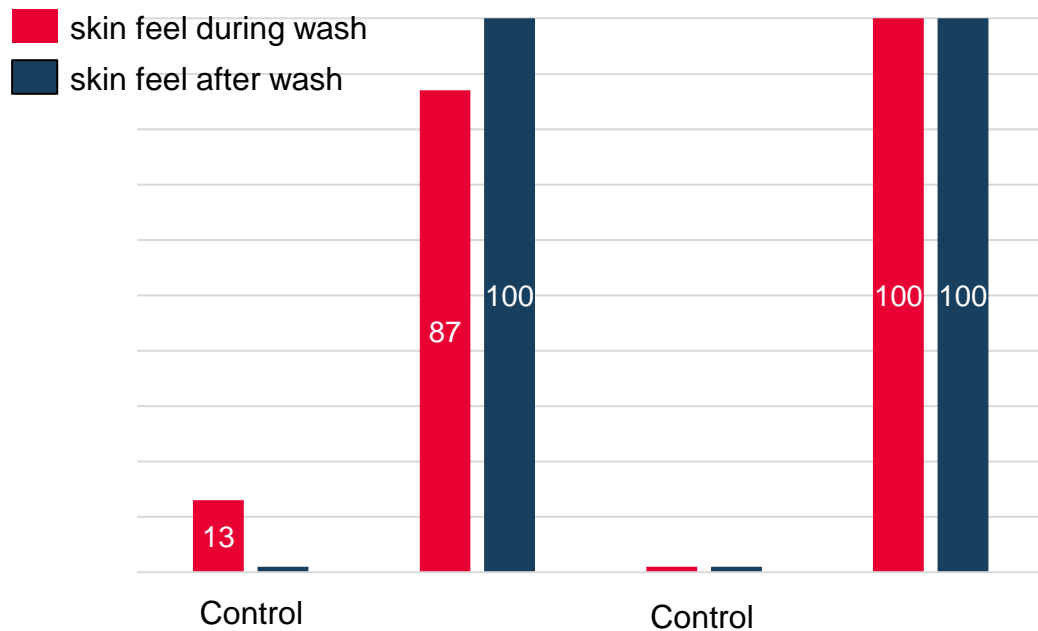
3. Rinsing

Rinse hands under tap water
Dry hands with towel
Assess softness on dried hands



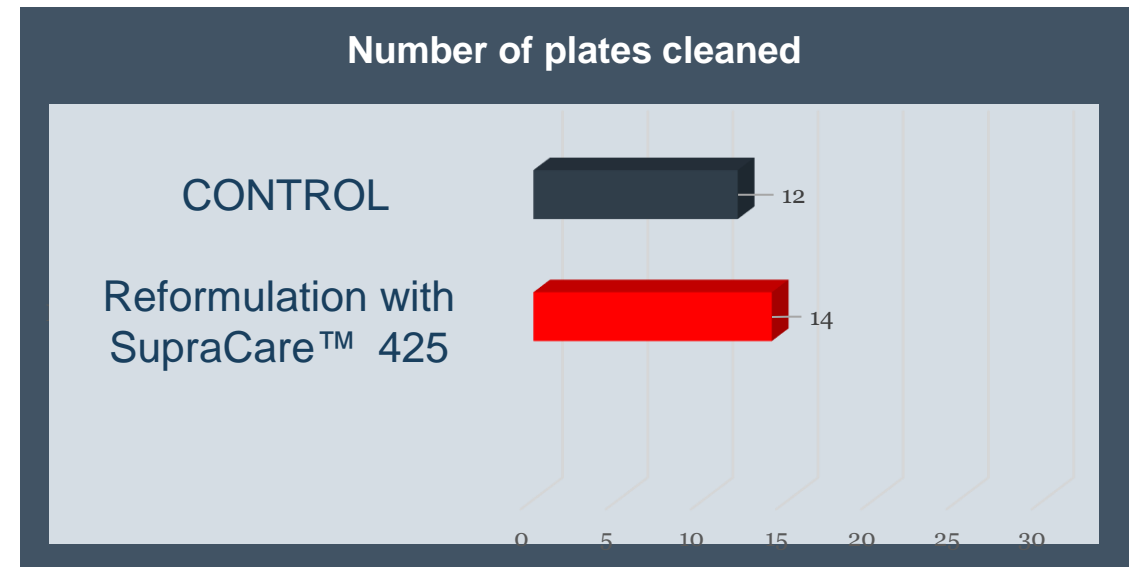
SupraCare™ 425 - Skin sensorial and mileage performance

Softness is improved both on wet and dry hands in presence of SupraCare™ 425 when compared to a control without SupraCare™ 425. At 0.7% use level, 100% of the panelists perceived the enhanced skin feel. Skin feel improvement is statistically significant both on wet and dry hands in presence of SupraCare™ 425.



Mileage Tests are conducted as per Dow Test Protocol : Low Cost MDW formulation

Dow re-formulation with 14% Surfactant Reduction + 0.1% SupraCare™ 425 improve slightly cleaning performance (14 Plates vs 12 Plates)



Test protocol

Washing and rinsing steps are repeated five times



1. Cleaning conditions

2 thermostated bath
6 L of Tap Water
Temperature 40°C
Water Hardness 18°
2.5 ml/L Hand Dish formulation



Ingredients	
	1kg
Water (g)	700
Margarine	100
Potato starch	5
Instant powder	25
Benzoic acid	1
Milk	50
Egg yolk (g)	54
Ketchup	25
Mustard	25



3. Washing

2 glasses per formulation
Clean glass inside bath with sponge,



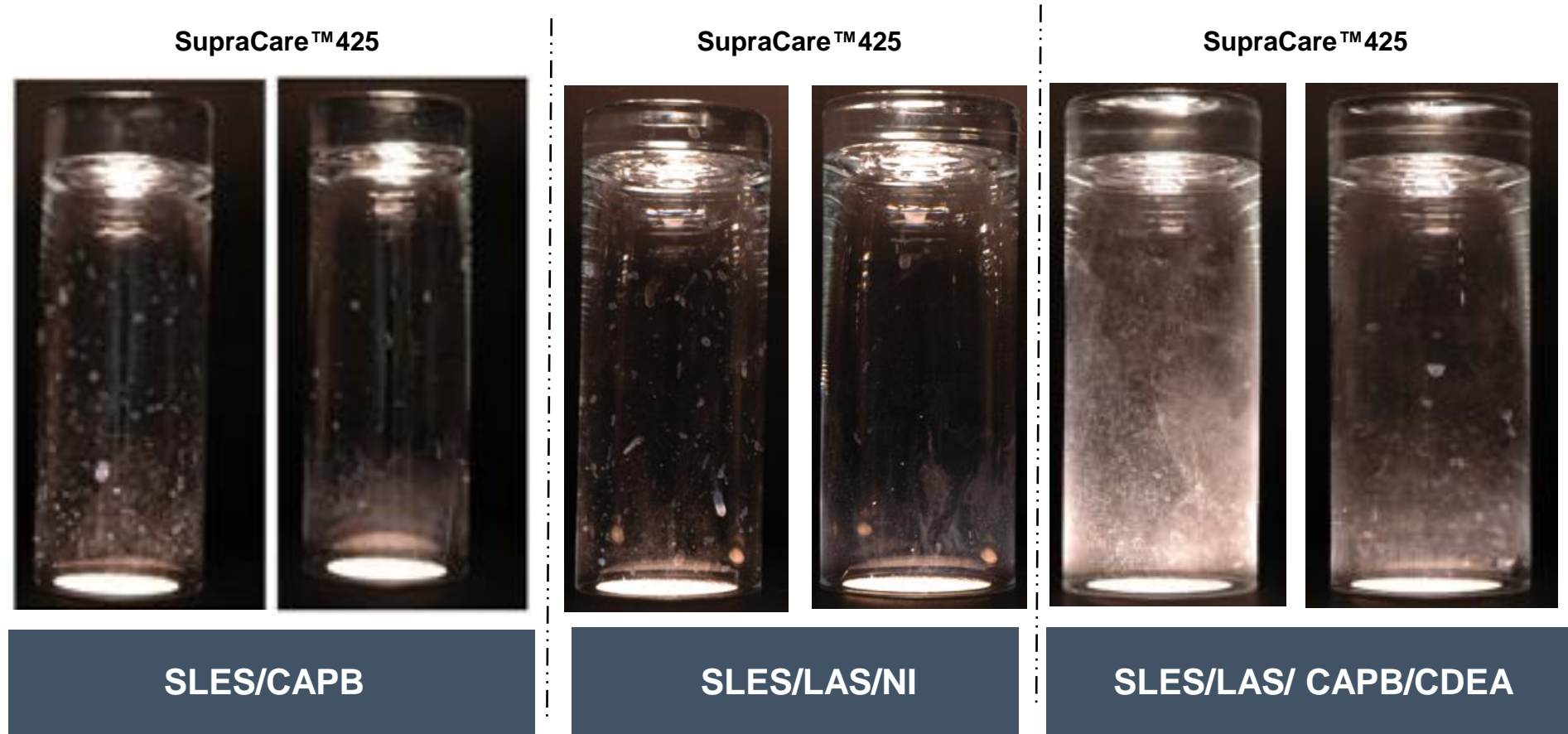
4. Rinsing

Rinse glass 3 times under
running tap water
Leave glass to dry



SupraCare™ 425 - Anti-Spotting / Anti-Filming

In all formulation chassis (**SLES/CAPB**, **SLES/LAS/NI** and **SLES/LAS/CAPB/CDEA**), the use of SupraCare™ 425 exhibits water-repellency mechanism resulting in less spot and better shine



SupraCare™ 430 Additive at a glance

SupraCare™ 430 Additive snapshot

- Better skin sensorial
- Better in wash and after wash feel
- Reduced dry feel of the skin
- Better lubrication
- Non-ionic: compatible with majority of raw materials typically used in detergents

	SupraCare™ 430 Additive
Solids level	100%
Appearance	White to off white free flowing powder
pH, 1% Solution	7
Viscosity (1% solution in water, Haake Rotovisko RV 100, shear rate 2.55 s ⁻¹ , 20°C)	1500 to 7500 mPa·s
Recommended use level	0.04% up to 0.1% as is

Applications:

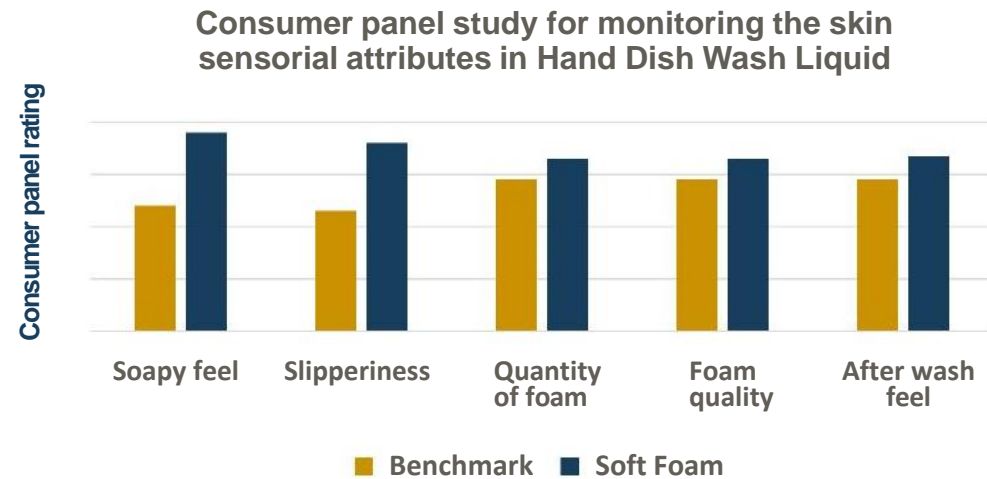
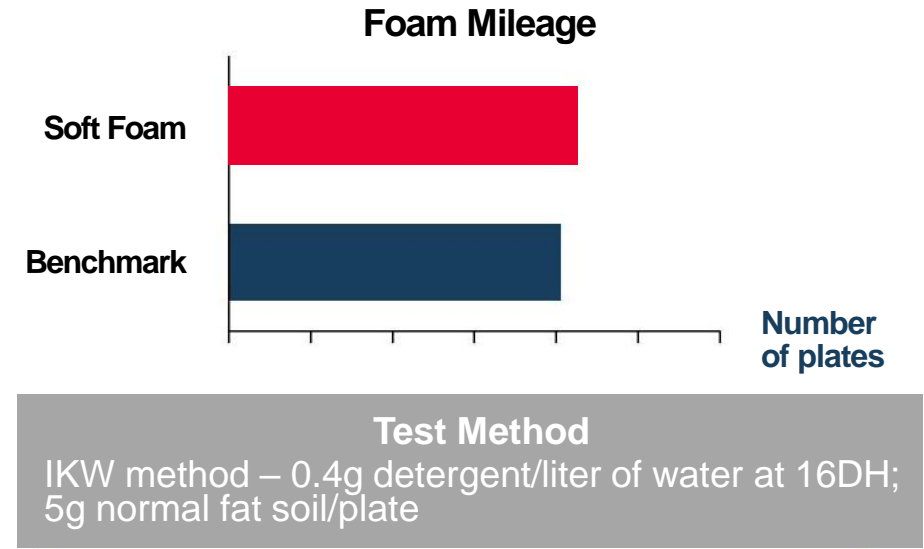
- Hand dishwashing liquids
- Liquid laundry detergents
- Manual powder laundry
- Laundry/multi-purpose bars



SOFT FOAM – Formulation details

Material / Supplier	% Wt	Description
SupraCare™ 430 Polymer / Dow	0.04	Performance booster
CELLOSIZETM QP-100 MH / Dow	0.6	Hydroxyethyl cellulose
Texapon N70 / BASF	13.1	Sodium Laureth Sulphate 70%
Empigen BS/FA / Huntsman	2.0	Cocamidopropyl Betaine 30%
TERGITOL™ 15-S-9 Surfactant / Dow	0.75	Secondary alcohol ethoxylate
ACUSOL™ 588 Polymer / Dow	1.5	Acrylic copolymer
ACUSOL™ 445 Polymer / Dow	1.5	Acrylic homopolymer
Sodium hydroxide 40%	QS pH 6	pH adjustment
Phenoxyethanol / DuPont	0.5	Preservative
Unicert Yellow 8005 (0.1%)/ Sensient	1	Dye
Unicert Blue 05601-J (0.1%)/ Sensient	0.2	Dye
Apple Queen / Givaudan	0.3	Fragrance
Water	QS 100%	

Physical properties	
Aspect	Transparent liquid
Odor	Lemon
Viscosity (cps)	300
pH	6



Fabric softeners



Middle East and Africa consumer key needs

Rheology

**Improve
sensory/
water
absorption**

**Long
lasting
fragrance**



ACUSOL™ 880/882 at a glance

ACUSOL™ 880/882 snapshot

- Nonionic HEUR Polymer, Easy to use
- No neutralization necessary.
- Compatible with cationic, anionic, nonionic, amphoteric surfactants and dispersants.
- Associative nature Increases efficiency when formulated with appropriate surfactants and particulate containing systems.
- Peroxide stability Provides moderate viscosity and stability to formulations containing up to 25% hydrogen peroxide.
- Acid compatibility (with acetic, phosphoric, sulfamic, citric, acids, etc.)

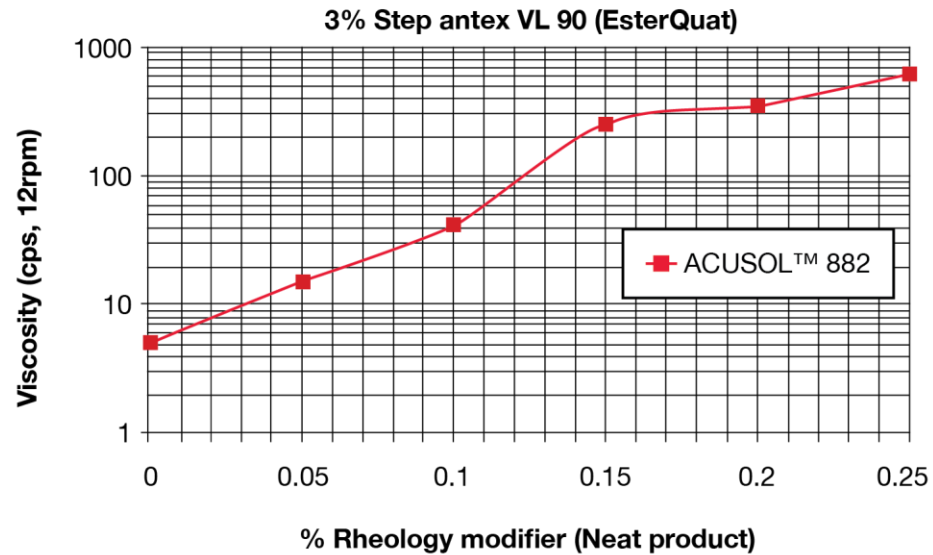
	ACUSOL™ 880	ACUSOL™ 882
Solids level	35%	17.5%
Appearance	Hazy, viscous liquid	Hazy, viscous liquid
pH, 1% Solution	7	7
Brookfield Viscosity	11000 mPa·s	2500 mPa·s
Recommended use level	0.3% up to 1% as is	0.3% up to 1% as is

Applications:

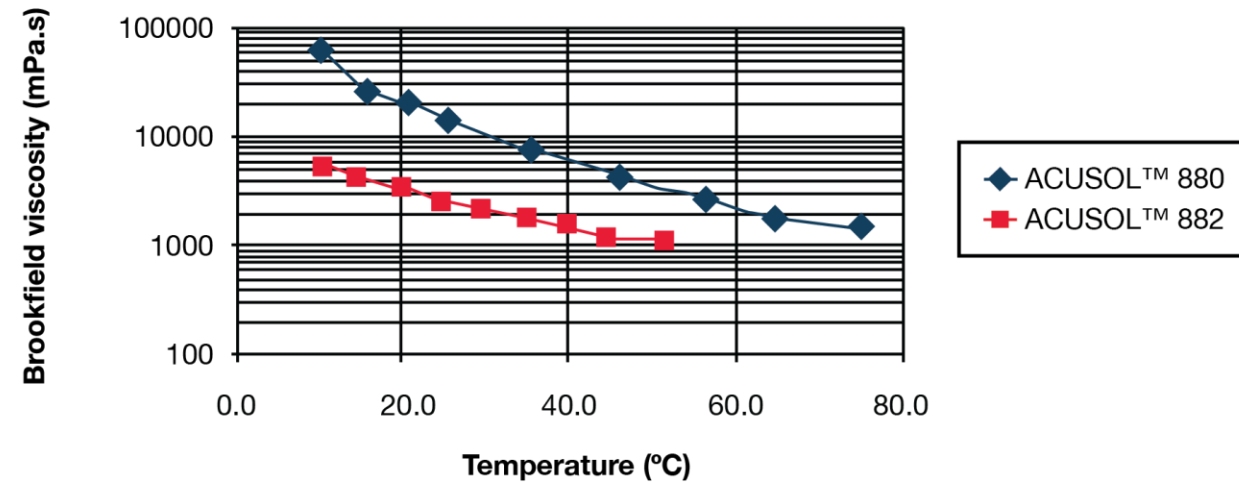
- Fabric softeners
- Acidic household cleaners
- Acidic abrasive cleaners
- Toilet bowl cleaners



ACUSOL™ 882 – Rheology performance in fabric softeners



Effect of rheology modifier concentration on viscosity



Viscosity vs temperature profile



DOWSIL™ FM6620 at a glance

DOWSIL™ FM 6620 Snapshot

- Cationic emulsion of a high molecular weight amine functional silicone
- High active content
- Easy to incorporate
- Effective at low addition levels
- Provides softness and volume
- Imparts water absorbency

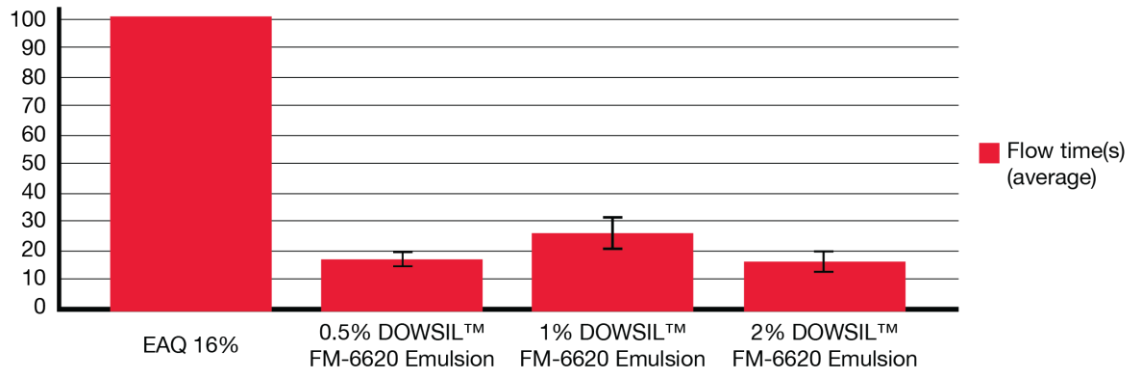
	DOWSIL™ FM6620
Solids level	58%
Appearance	Milky White
pH, 1% Solution	3 to 5
Emulsifier Type	Cationic
Recommended use level	0.5% up to 2% active

Applications:

- Rinse cycle fabric conditioner
- Laundry and fabric care



DOWSIL™ FM6620 – Water absorbency and softness boost

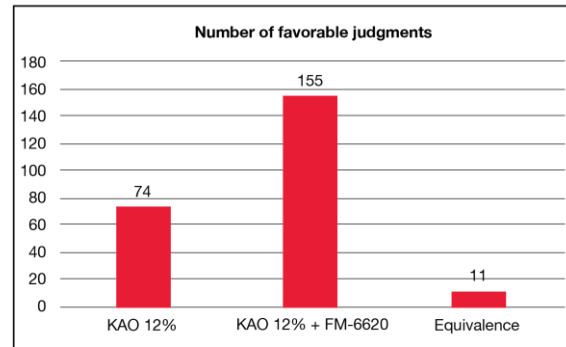
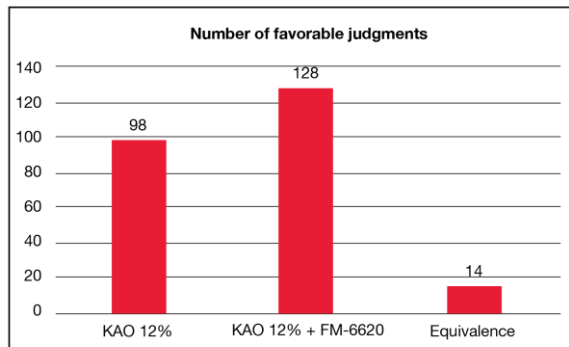


Softness feel:

3 cumulative washes, Panel test done by CTTN Institute – 240 answers

Two tailed test according standard NF EN ISO 5495

1% FM-6620: directional softness improvement; 2% FM-6620: significant softness improvement (99% confidence level)



Water absorbency:

In comparative tests, the water absorbency of treated terry towels could be increased significantly by the addition of 0.5wt% of DOWSIL™ FM 6620 to a standard rinse cycle softener based on ester quats



SupraCare™ 420 at a glance

SupraCare™ 420 snapshot

- Water soluble polymer
- Stable in acidic media using weak acid or alkaline source
- Effective over broad pH range, from 2 to 12
- Ease of handling
- Low use level (around 0.5%)

	SupraCare™ 420
Solids level	100%
Appearance	Off White Powder
pH, 1% Solution	8 to 10
Recommended use level	0.2% up to 1% as is

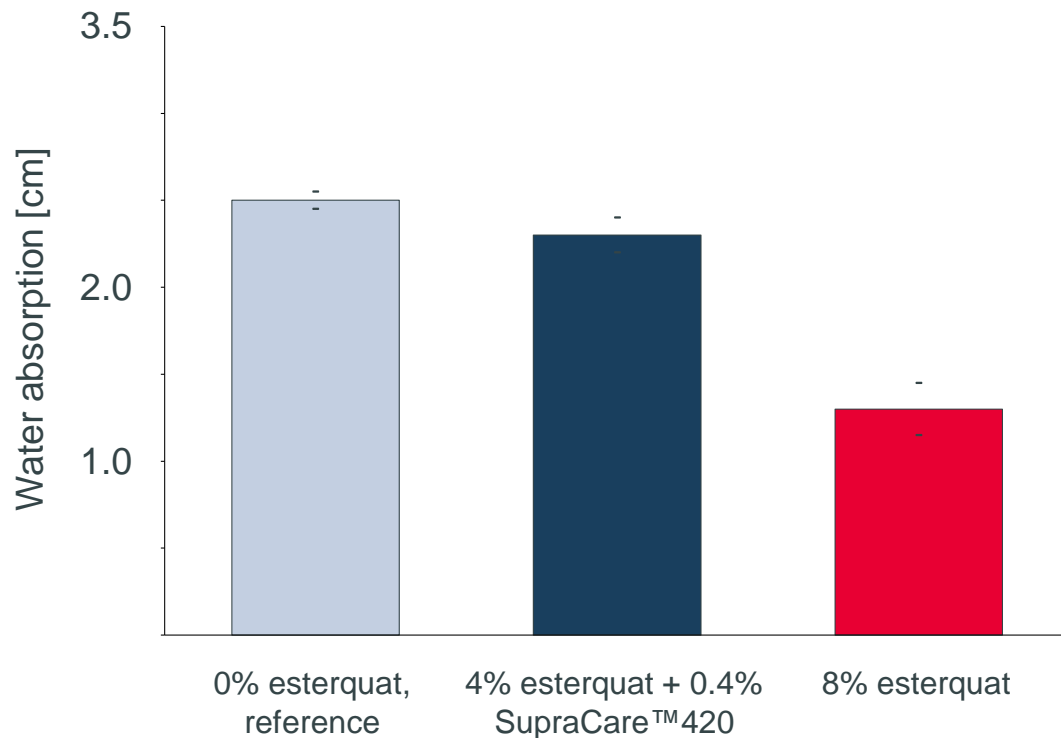
Applications:

- Fabric softeners



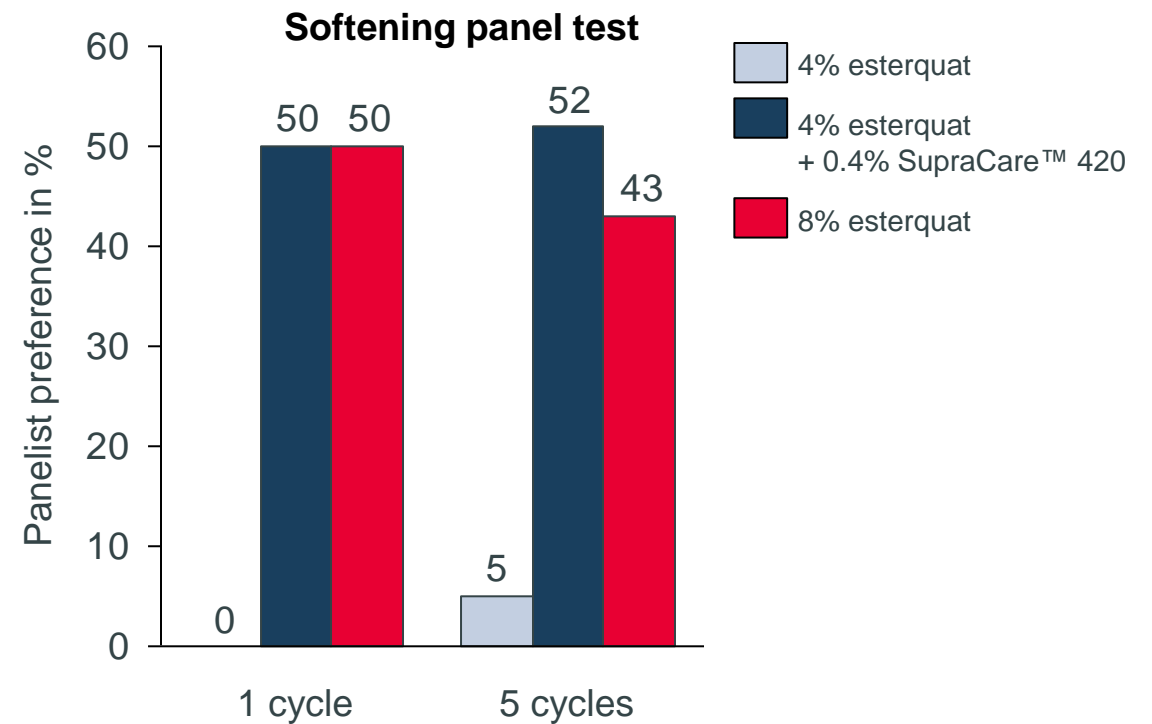
SupraCare™ 420 – Water absorbency and softness boost

Internal wicking test demonstrated superiority of formula containing reduced esterquat level (4%) with of 0.4% SupraCare™ 420 compared with reference formulation with 8% esterquat



Water absorption in cm measured according to the Dow Internal Wicking Test methodology

Formula containing 8% esterquat showed the same softness as 4% esterquat with 0.4% SupraCare™ 420 according to panelist evaluation after one and five washing cycles



% of panelists ranking fabrics washed in the particular formulation as the softest. Results ranked according to the statistical analysis by the F-test (ISO 8587).





Thank you



Seek

Together™

THANK YOU

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