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Care Ingredients
Our knowledge. Your formulations.

BergaCare Re-Lite

Advanced care, natural feel:
Strength from inside out!



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Repair & Conditioning

What Does it Mean?

Repair & Conditioning

They have partly overlapping functions

Repair = Restoration of already compromised hair properties (sensory / physical / mechanical)

Conditioning = General improvement of hair properties

≠ Bond building



Improved combability (wet & dry)



Improved touch



Improved smoothness / slip



More gloss



Less static charge



Repair: Protection from (further) mechanical stress, compensation of structural loss

Conditioning Systems at a Turning Point

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Classical Systems:

- Deliver immediate sensory benefits
- Build-up on hair surface over time – heavy, coated hair feel
- Limited impact on real fiber structure

Requirements for Modern Hair Care Conditioning:

- Respect the hair's structural complexity
- Differentiate between surface and interior
- Deliver performance while being lightweight

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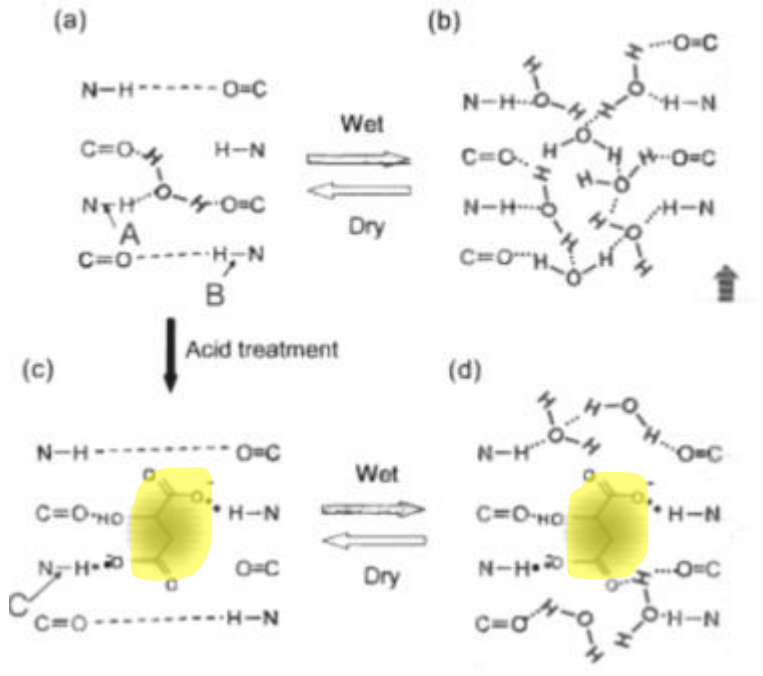
Organic Acids

Replacing water molecules in hair



T. Itou, M, Nojiri, Y. Ootzuka, K. Nakamura, *J. Cosmet. Sci.* **2006**, *57*, 139–151.

Glycolic Acid as smallest α-Hydoxy Acid can

- Penetrate the hair
- Replace water molecules
- Increases stability of the protein network
- Increase denaturation temperature
- Improve mechanical properties
- Chelates Calcium ions (→ reduces calcium deposition)
- Reduces frizz and increases humidity resistance

Confirmed in B+S study!

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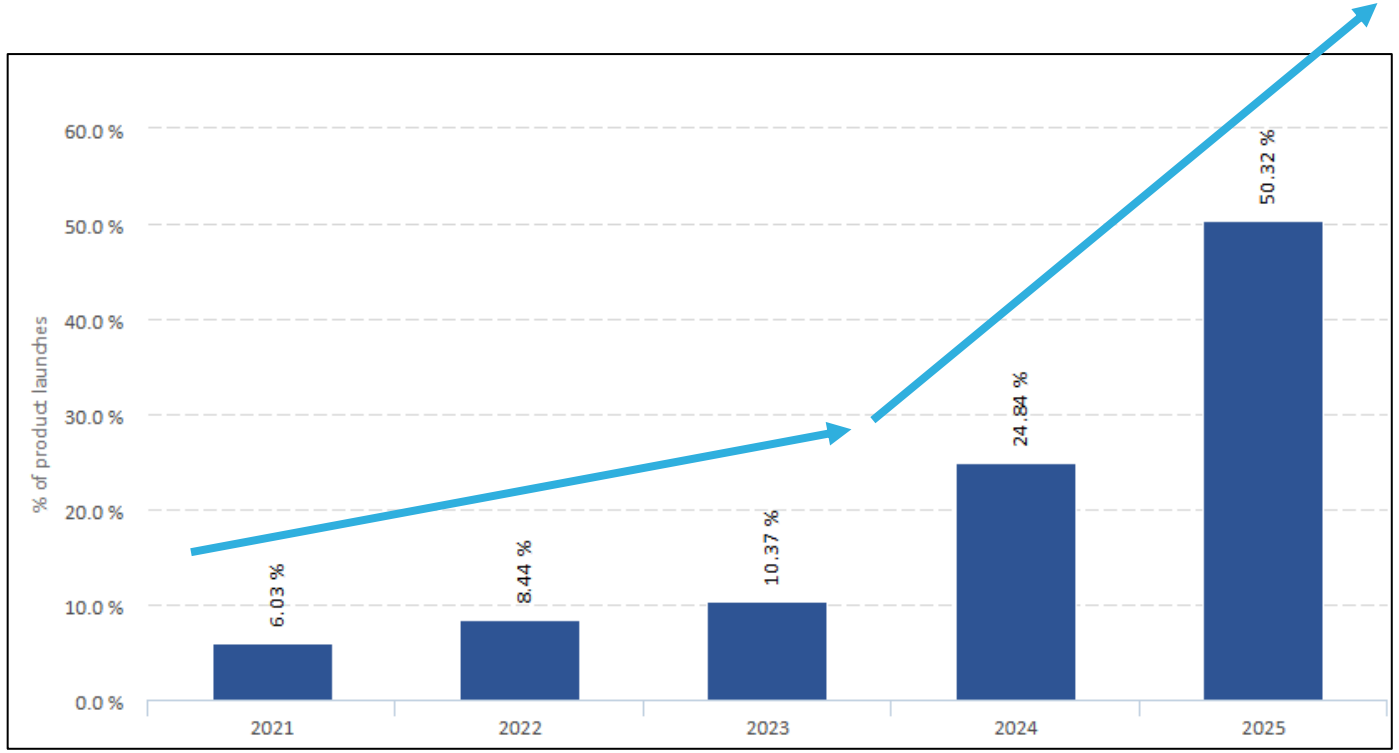
Market Insights

The Rise of Glycolic Acid

Glycolic Acid

Hair care launches globally 2021-2025 with Glycolic Acid as ingredient



Over the last 5 years, 50% of Hair Care products with Glycolic Acid were launched last year!

Source: Innova New Products Database

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The trendsetter:



Launch: March 2024
Price: 6,95 EUR / 200 mL

BergaCare Re-Lite

Reinforcing hair from inside and outside

BergaCare Re-Lite

Reasons for development

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Our aim:

+ Create a multifunctional repair & conditioning blend that meets modern consumer needs:



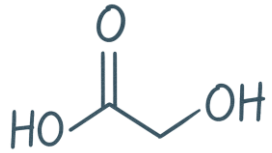
+ Respecting the structural complexity of hair
+ Delivering immediate effects without masking the hair
+ Reinforcing / protecting hair → repair
+ Targeted action on hair

BergaCare Re-Lite

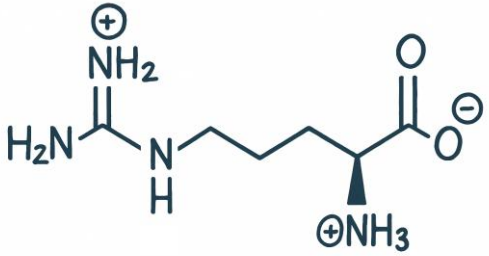
Introduction

- A multifunctional repair & conditioning complex that supports the hair at several structural levels.
- INCI: Aqua, Glycolic Acid, Arginine, Starch Hydroxypropyl Trimonium Chloride, Sodium Chloride

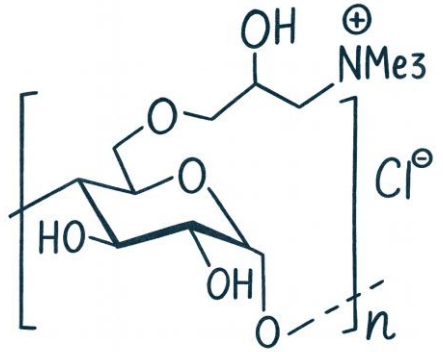




Glycolic Acid
A small α-hydroxy acid



Arginine
A cationic amino acid



Starch Hydroxypropyl Trimonium Chloride
A quaternized starch derivative

Meet the Trio

A complementary system for inside–outside conditioning

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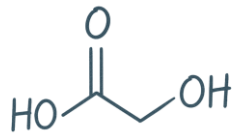
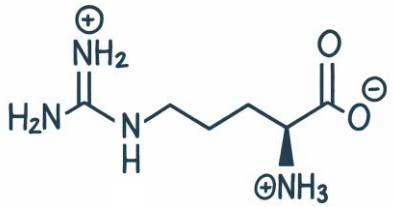
+ A multifunctional repair & conditioning complex that supports the hair at several structural levels.
+ INCI: Aqua, Glycolic Acid, Arginine, Starch Hydroxypropyl Trimonium Chloride



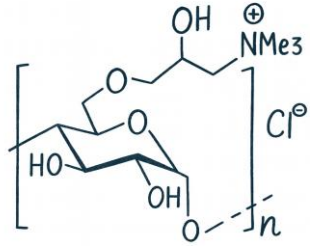
Glycolic Acid

- Small, water-soluble molecule, penetrates into cortex
- Interacts with keratin via hydrogen bonding
- Supports hair resilience under mechanical and thermal stress



Arginine

- Forms a complex with glycolic acid
- Enhances interaction with damaged, negatively charged hair areas
- Facilitates targeted delivery and retention within the hair fiber
- Additional benefits for scalp formulations



Starch Hydroxypropyl Trimonium Chloride

- Forms thin, flexible and fully reversible film Supports improved combability and smoothness
- Contributes to a natural, lightweight hair feel
- Enhances foam quality in shampoo systems

→ Arginine carries Glycolic Acid to the hair, Glycolic Acid penetrates the hair improving its internal structure, and the starch based conditioning agent wraps around the hair surface

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BergaCare Re-Lite

Measurable & Visible Effects

Efficacy/performance

Combing force reduction

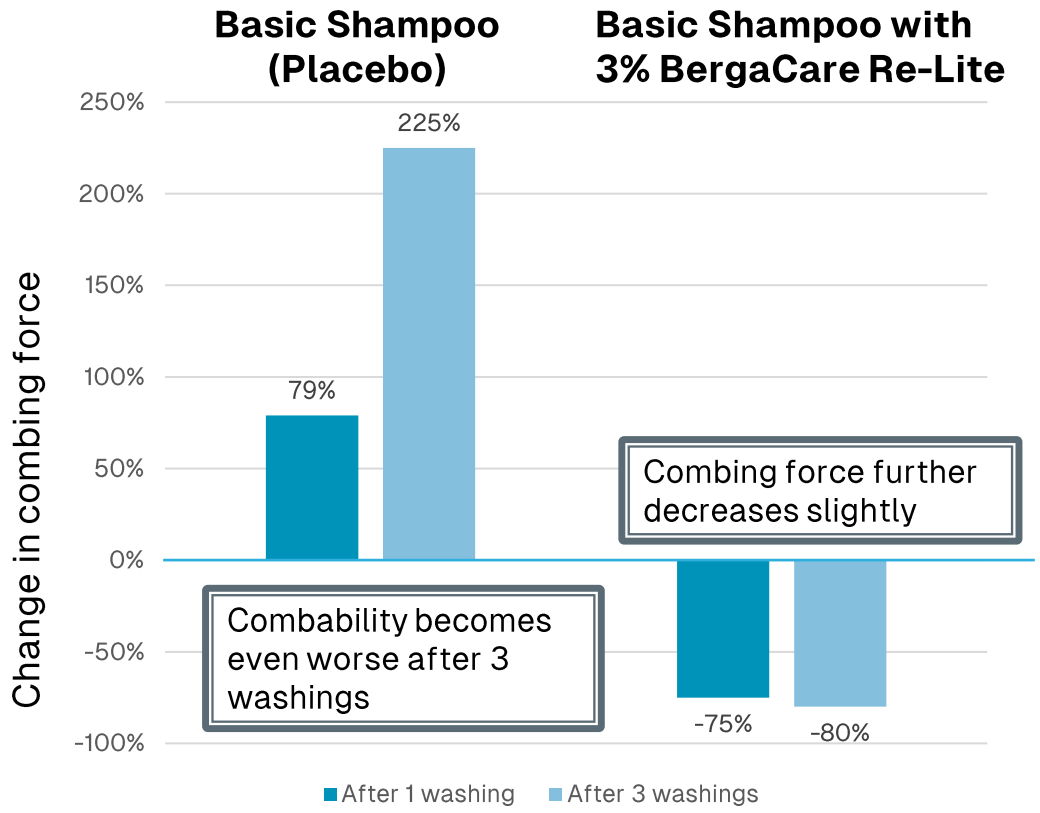


Test formulations:

INCI / Ingredient	Basic Shampoo (Placebo), % w/w	Basic Shampoo with 3% BergaCare Re-Lite, % w/w
Aqua	Up to 100	Up to 100
Sodium Laureth Sulfate 27% aq.	32.1	32.1
Cocamidopropyl Betaine 30% aq.	8.10	8.10
BergaCare Re-Lite (Glycolic Acid, Arginine, Starch Hydroxypropyl Trimonium Chloride)	-	3.00
Sodium Levulinate, Sodium Anisate	3.50	3.50
Sodium Chloride	1.00	1.00
Citric Acid	q.s.	q.s.

Efficacy/performance

Combing force reduction after **repeated** washing



Test formulations:

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Sodium Levulinate, Sodium Anisate	3.50	3.50
Sodium Chloride	1.00	1.00
Citric Acid	q.s.	q.s.

Confirmed with 3 tresses (data not shown)

Efficacy/performance

Combing force reduction

Basic Shampoo (Placebo)

Basic Shampoo with 3% BergaCare Re-Lite



Knotted & chaotic

Detangled & smooth

After 1 washing

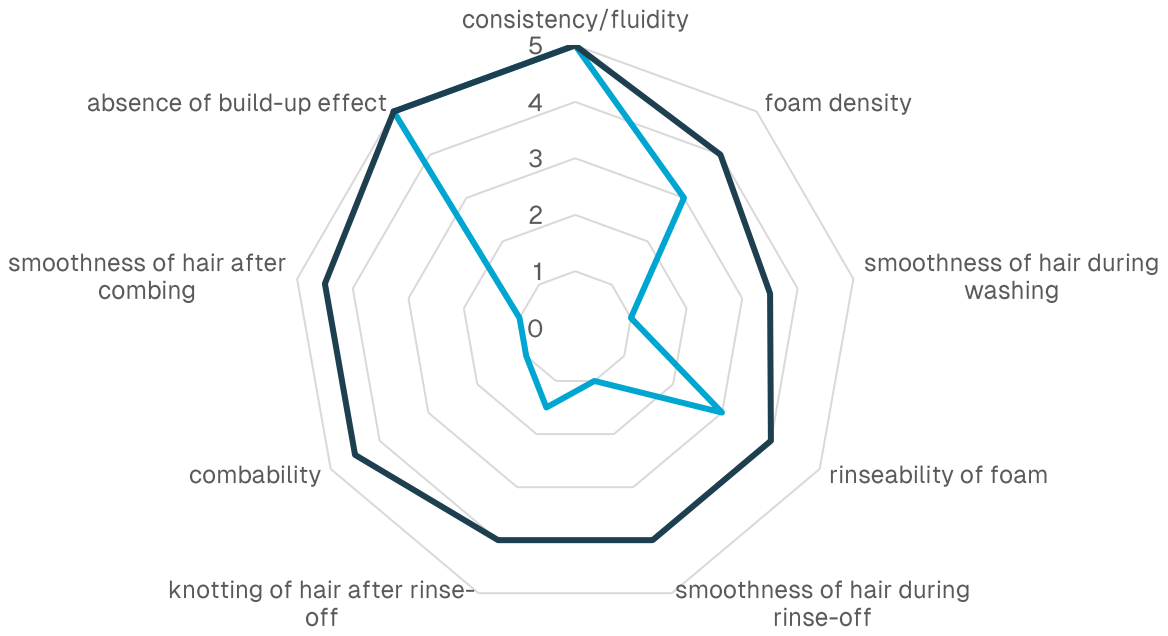
A difference you cannot only measure – you can really see it!
The hair that has been washed with the shampoo containing 3% BergaCare Re-Lite looks much more **detangled** than the hair washed with placebo shampoo.



After 3 washings

Efficacy

BergaCare Re-Lite



A difference you can feel!

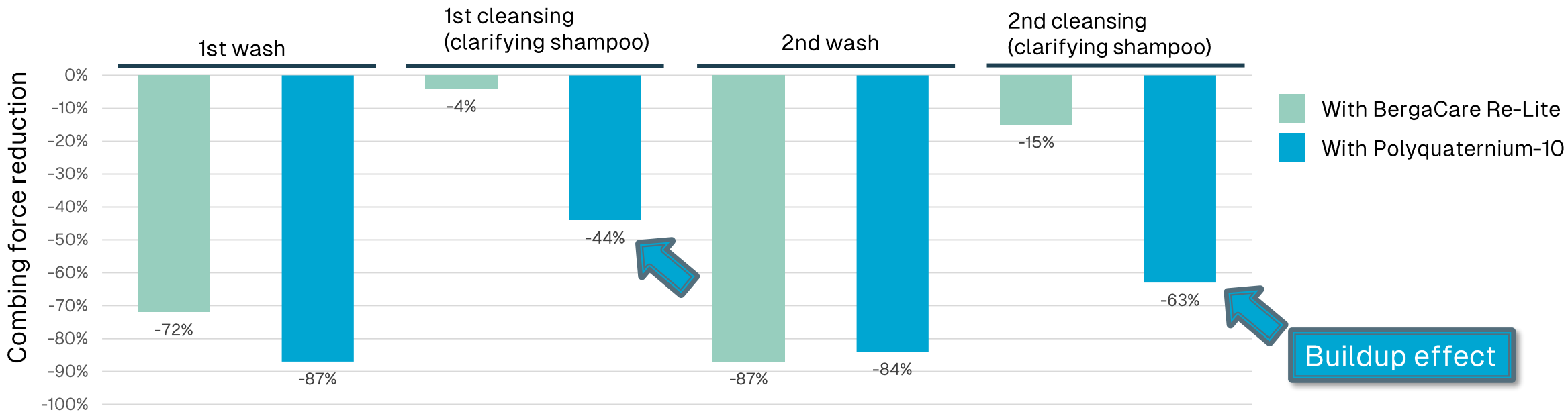
Basic Shampoo (Placebo)

Basic Shampoo with 3% BergaCare Re-Lite

1 = very bad
5 = very good

Efficacy

BergaCare Re-Lite



Lightweight conditioning instead of heavy buildup

The Dynamic Foam Analyzer

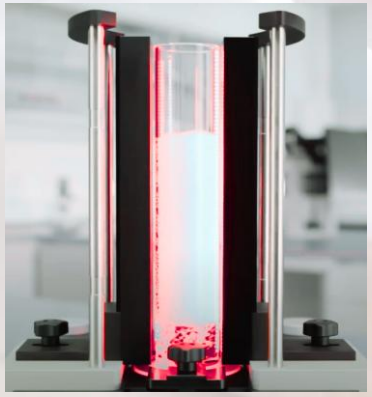
Measurement explained



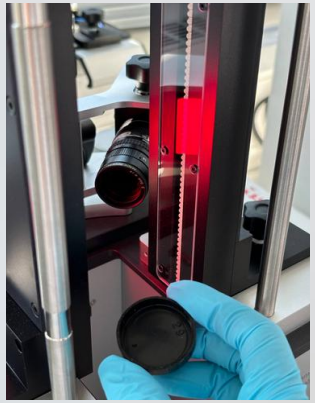
10% shampoo solution



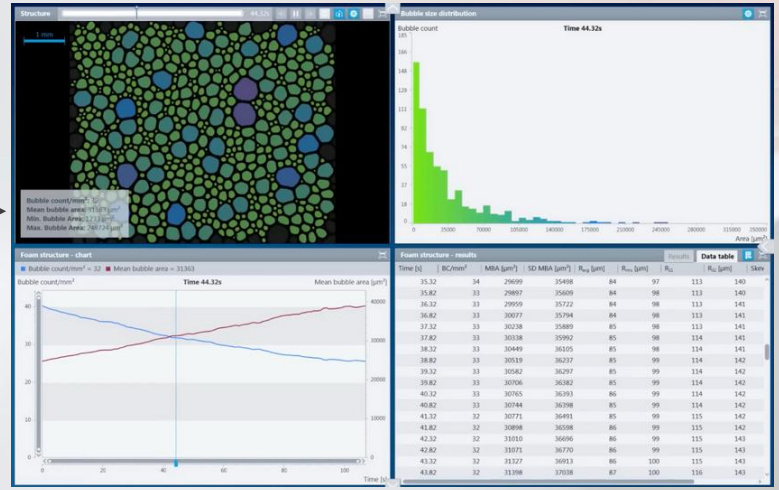
Into column



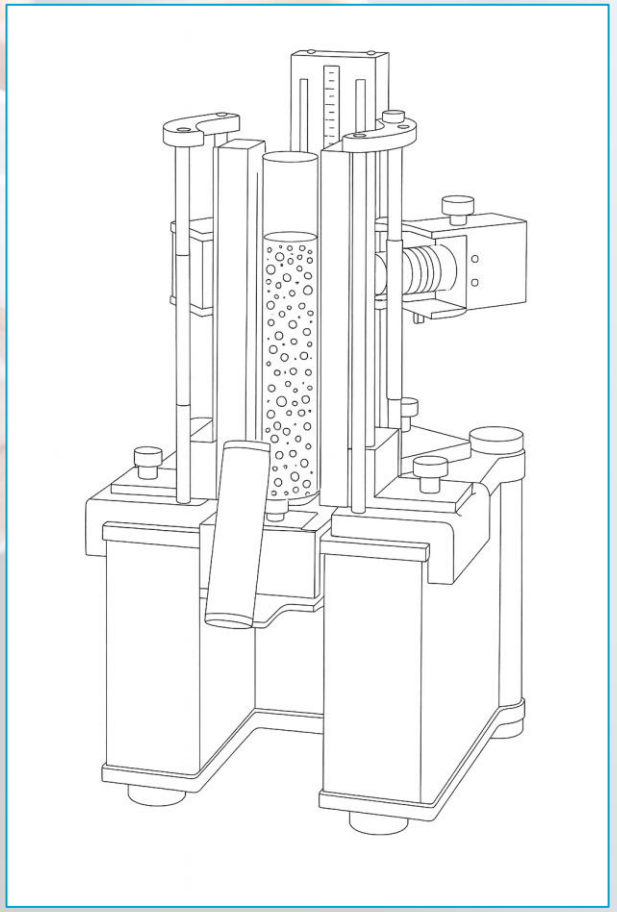
Foaming by sparging with air



Camera detection

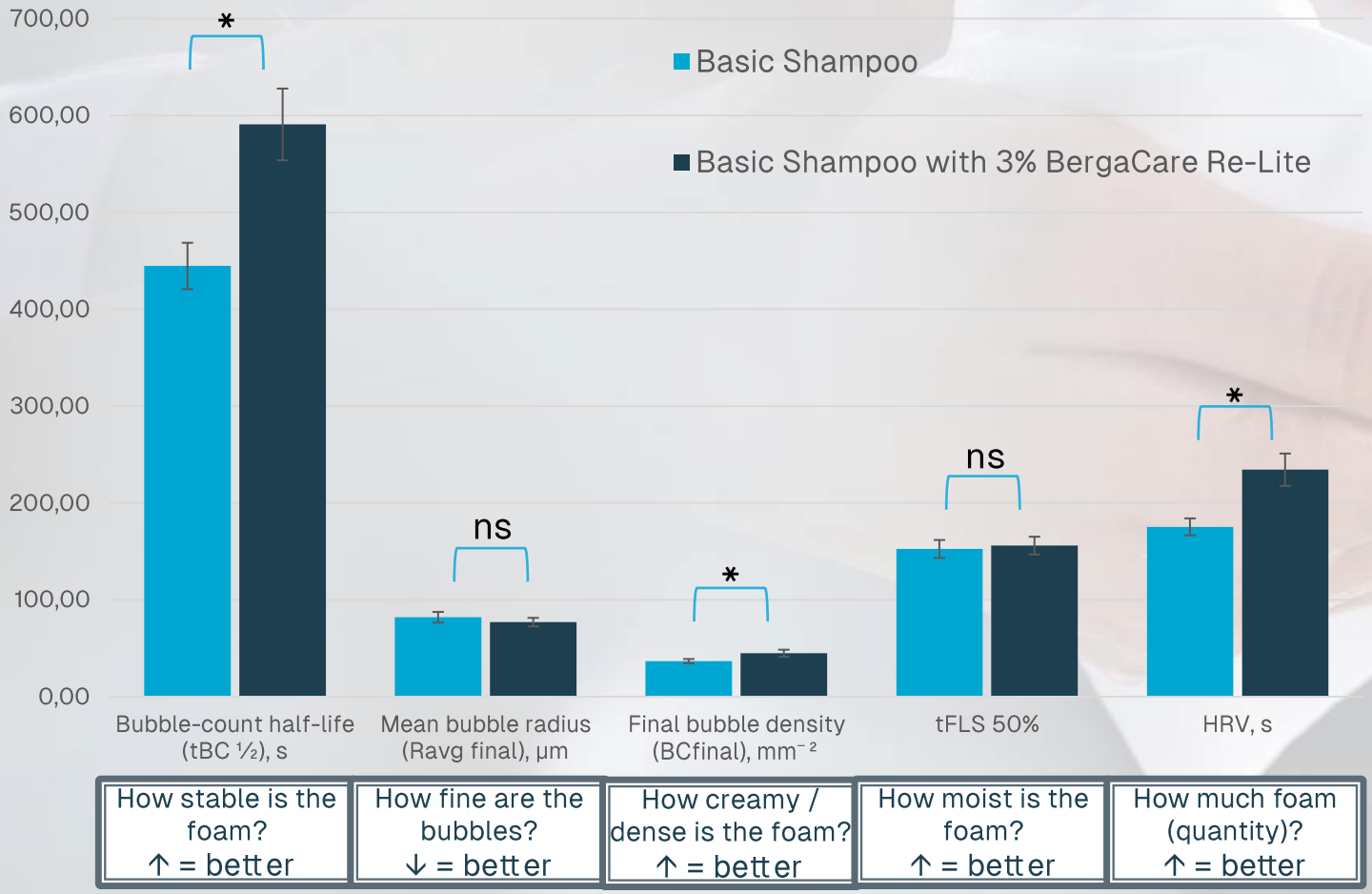


Results



Efficacy/performance

Foam boosting effect against placebo



Consumers expect a **high quality foam**.

BergaCare Re-Lite significantly improves the foam compared to placebo shampoo:

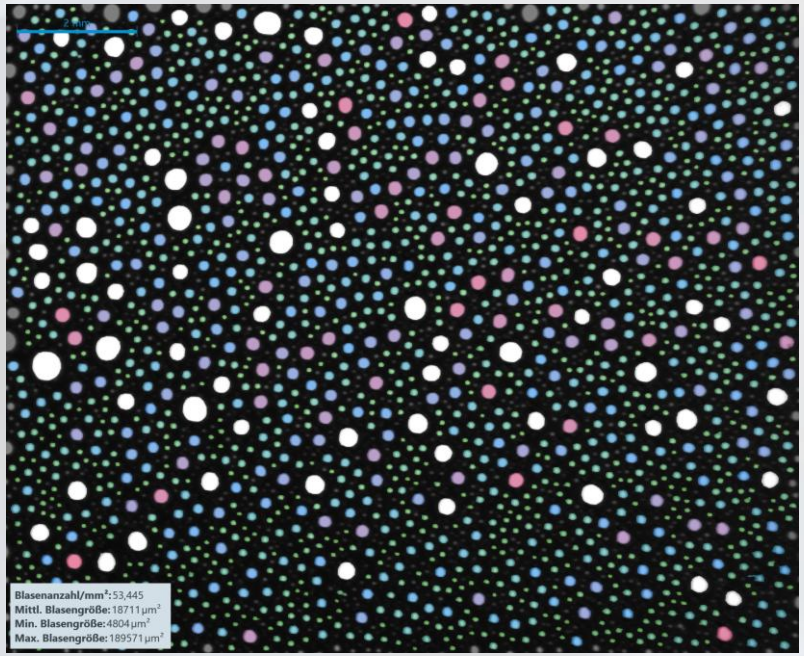
- Foam is more **stable**
- Foam is **creamier/denser**
- Foam **quantity** is higher

ns = non-significant; *p < 0.05

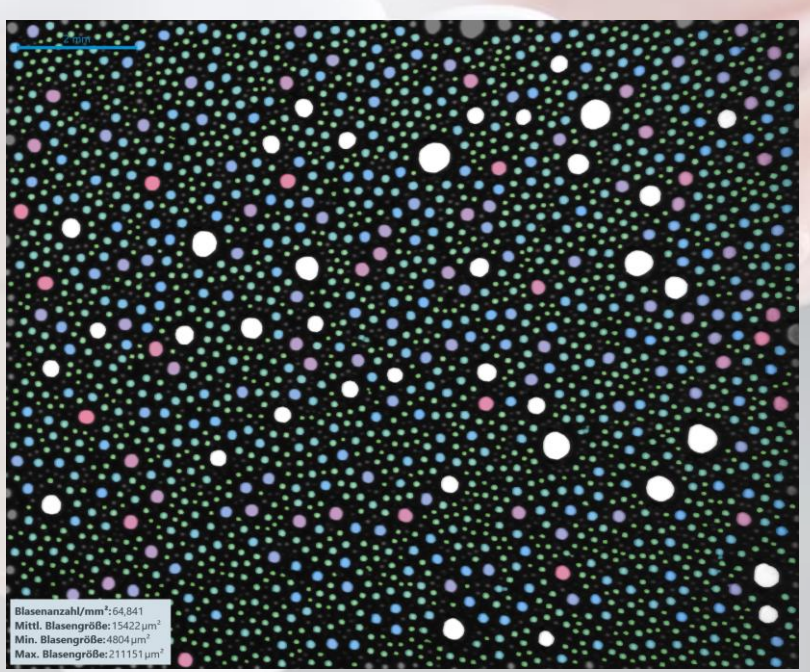
Efficacy / performance

Example Snapshot

Standard Shampoo without BergaCare
Re-Lite at t = 7 min



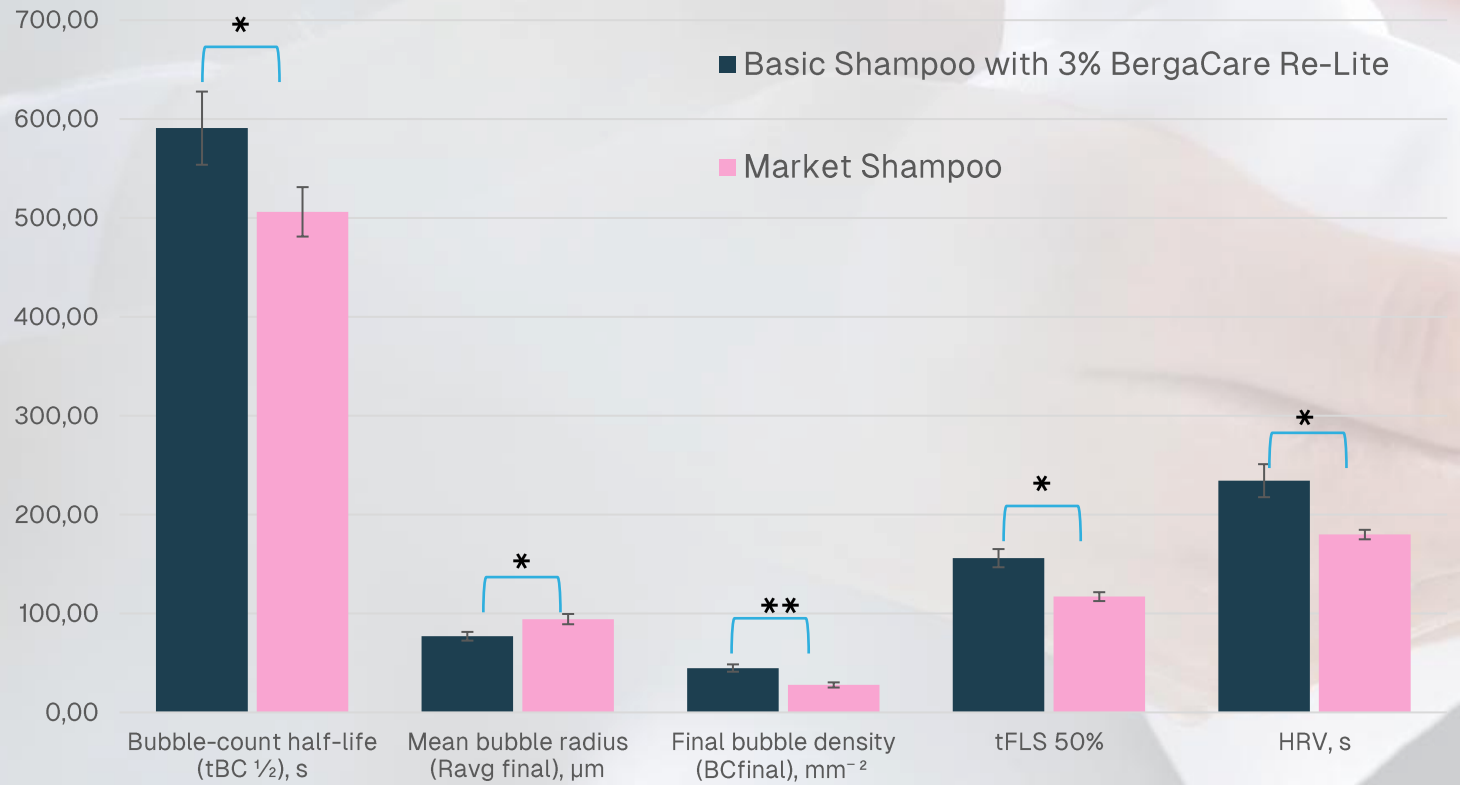
Standard Shampoo with 3% BergaCare
Re-Lite at t = 7 min



Fewer large bubbles (color code: white, purple) and more bubbles in total

Efficacy/performance

Foam boosting effect against market product



How stable is the foam? ↑ = better	How fine are the bubbles? ↓ = better	How creamy / dense is the foam? ↑ = better	How moist is the foam? ↑ = better	How much foam (quantity)? ↑ = better

The test shampoo with 3% BergaCare Re-Lite outperformed a shampoo by a market-leading brand:

- Foam is more **stable**
- Foam is **finer**
- Foam is **creamier/denser**
- Foam is more **moist**
- Foam quantity is **higher**



*p < 0.05; **p < 0.01

Efficacy/performance

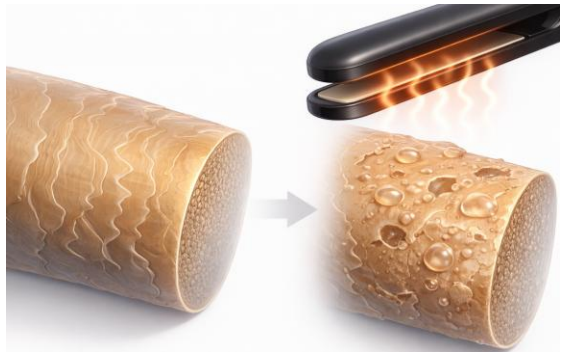
Hair protection effect

Hair **swells irregularly** in humid/wet environment.

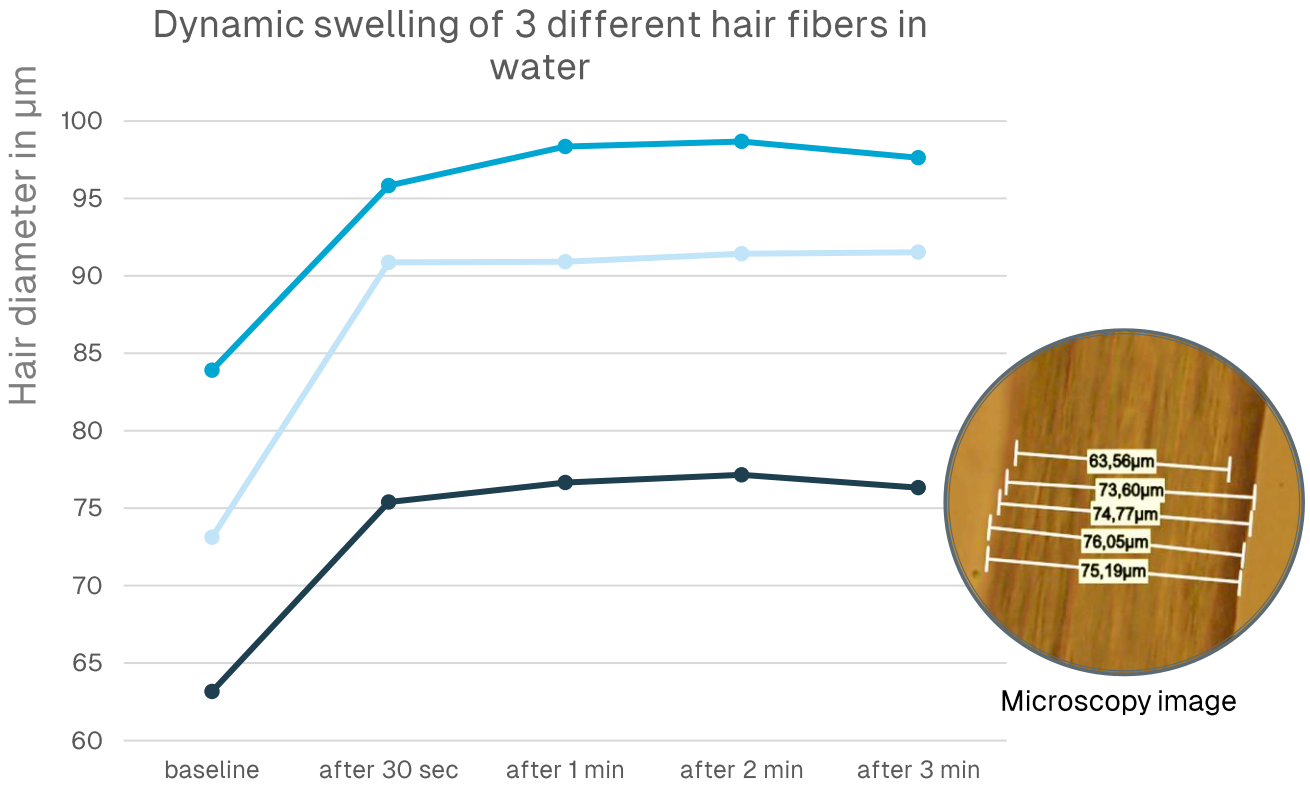
When hair is wet, the **cortex** (amorphous matrix) inside the hair is swollen → more prone to mechanical damage, more **vulnerable state**.

The **hair diameter** increases up to 30%!

Hair protection means that the hair swells less. The hair is more resilient towards mechanical and thermal stress.



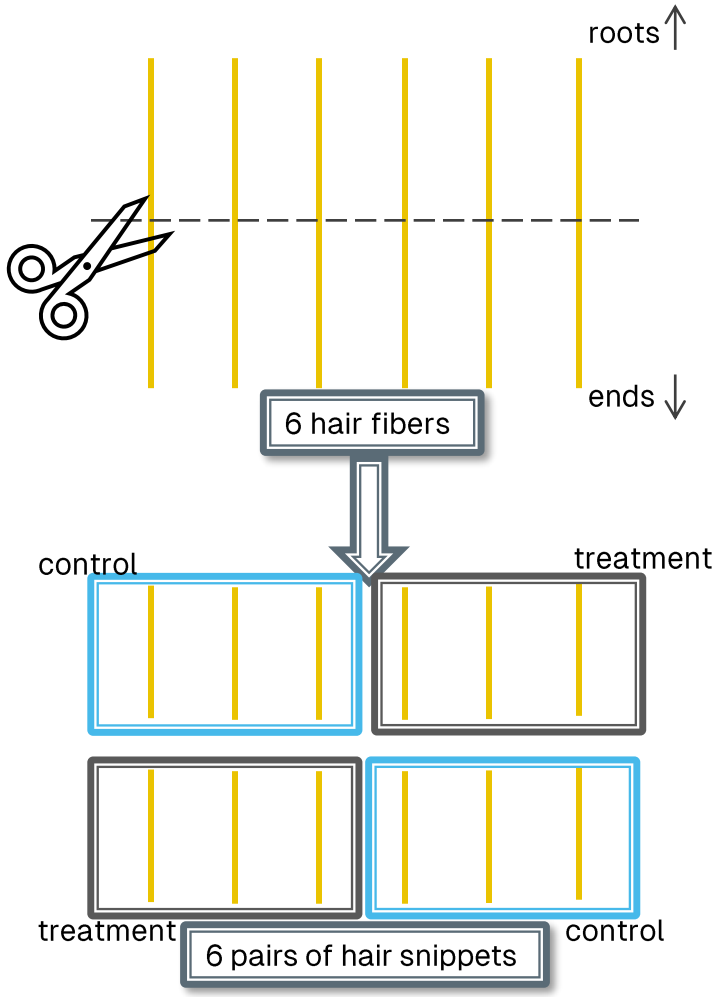
Wet hair + heat = explosive evaporation & damage

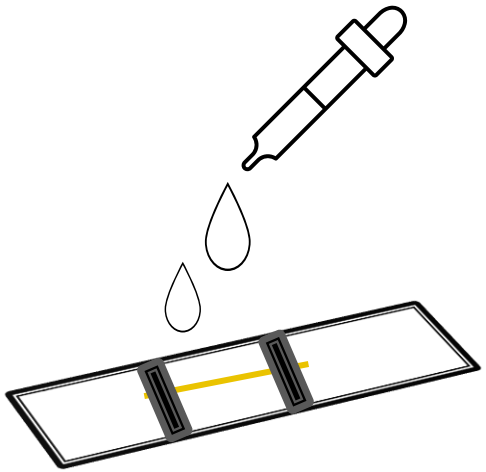


Microscopy image

Efficacy/performance

Hair protection effect





Placement of microscopic slide
+ addition of water



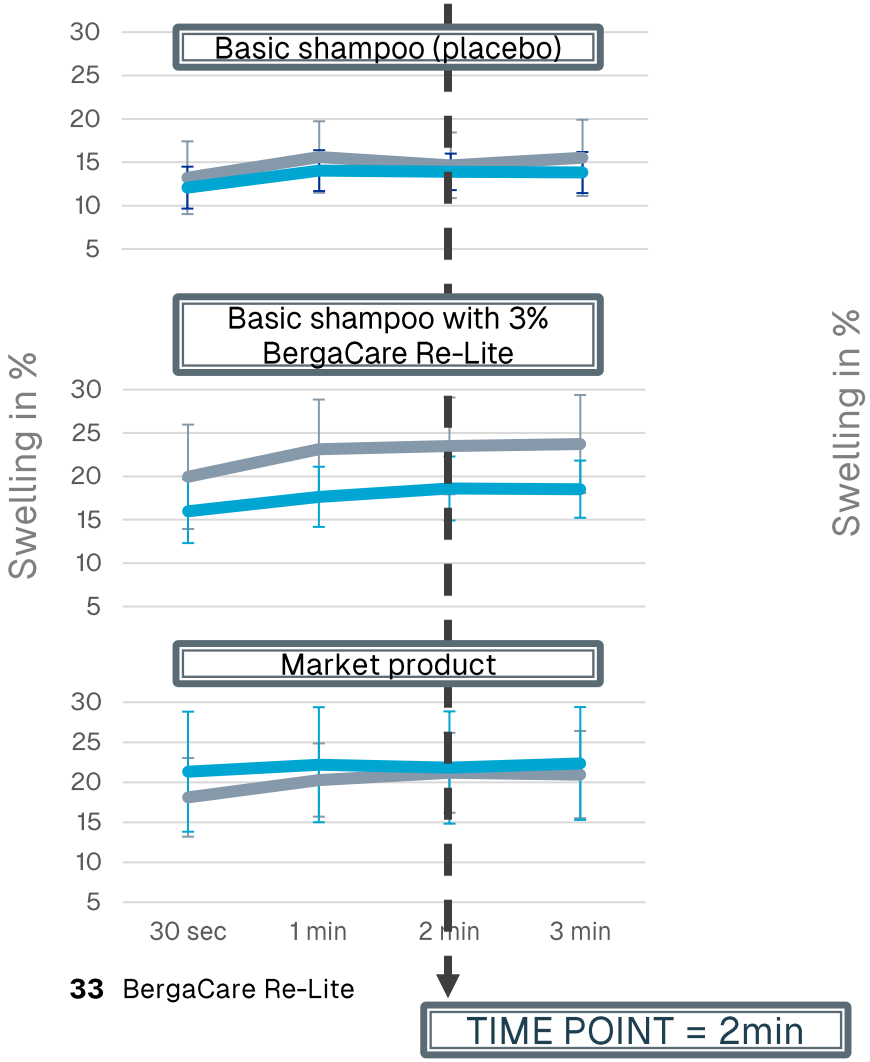
Measurement of hair diameter in real time

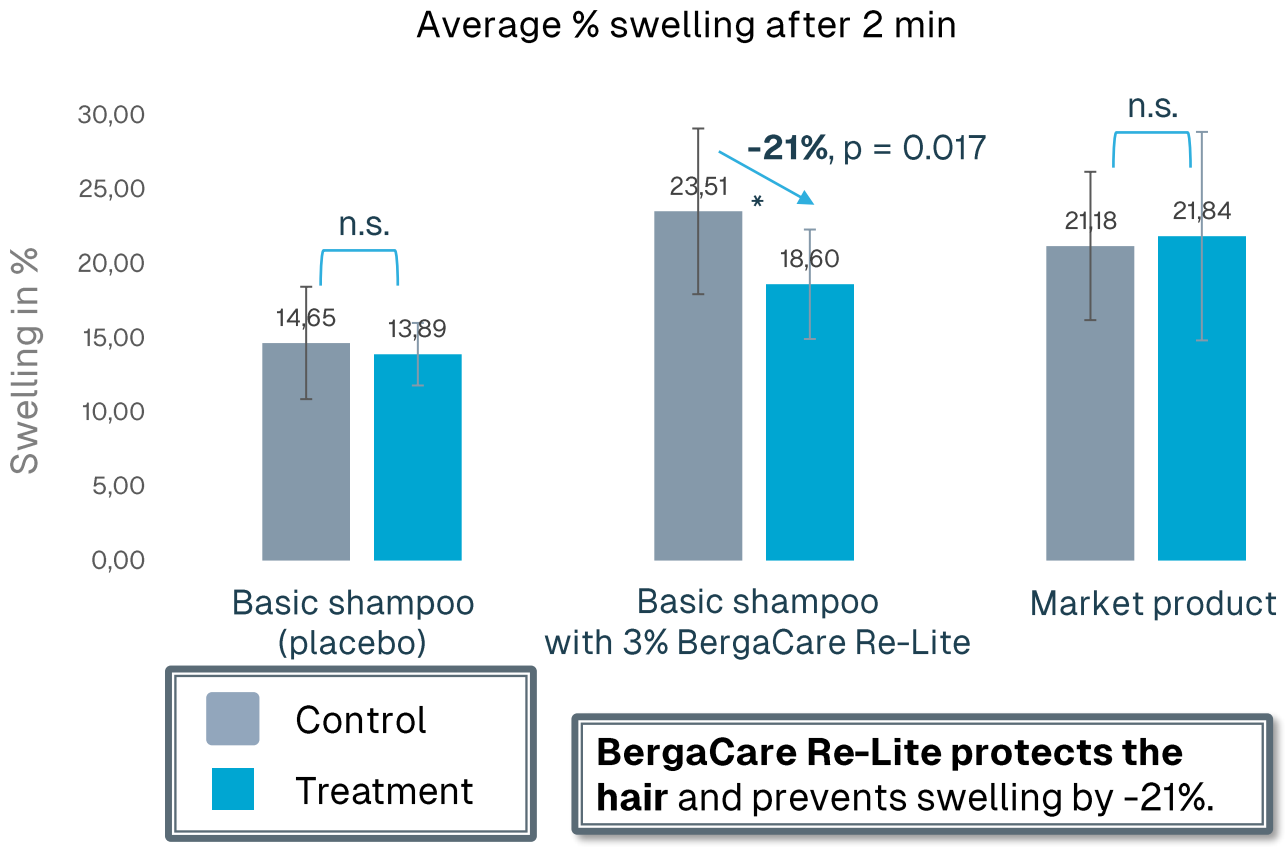
Procedure:

- Bleached (=damaged) Caucasian standardized hair was used.
- Test products: basic shampoo (placebo) & basic shampoo with 3% BergaCare Re-Lite.
- For each test product, 6 hair fibers were used.
- Each hair fiber was cut into 2 parts – 1 for control, 1 for treatment.
- Treatment: the hair was immersed into a 10% solution of the shampoo for 30 min, then rinsed and air-dried for 24 h
- The hair was placed under the microscope, wetted with water, and the diameter measured after 2 min.

Efficacy/performance

Hair protection effect





Arginine: The Hidden Champion

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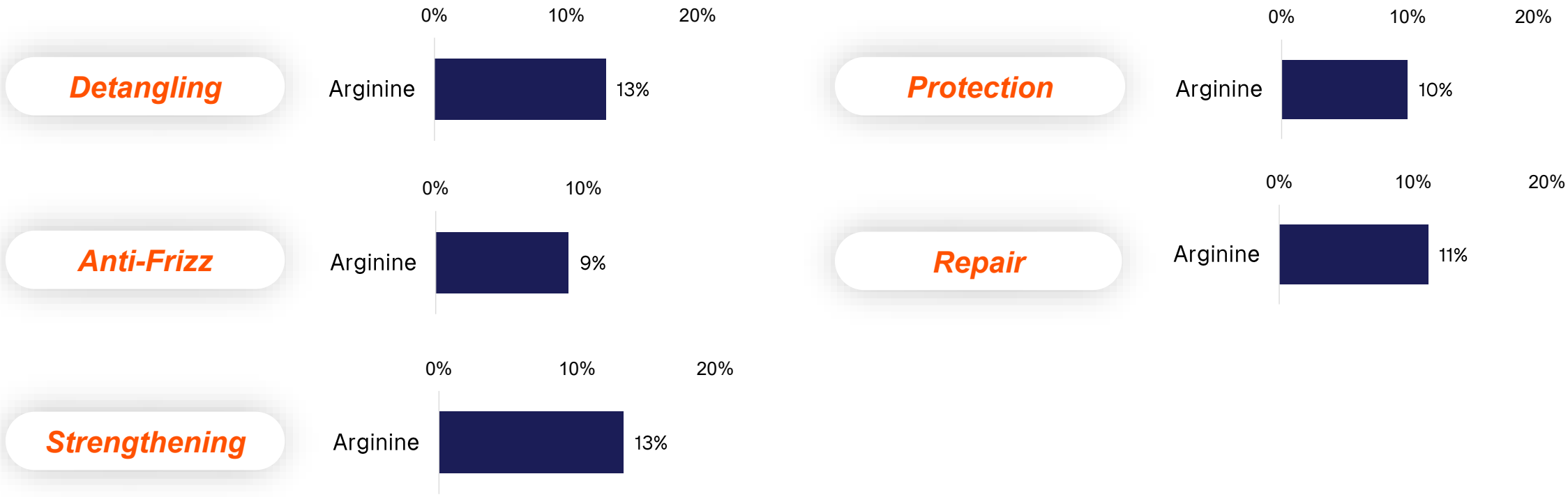
Arginine Found in the Context of Typical Hair Care Claims



Source: Innova Database

Notes: The bubble size is based on the # of launches in 2025 (N=31275). Upcycling claims remain niche in hair care (<250 launches; ~0.1% in 2025) and are not shown in the chart.

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Efficacy/performance

Further advantages

- Highly concentrated complex with 60% active content, optimized blend
- Preservative-free
- Transparent formulations possible
- Ultra-pure formaldehyde-free glycolic acid is used

BergaCare Re-Lite

The Holistic Hair Care Active Blend

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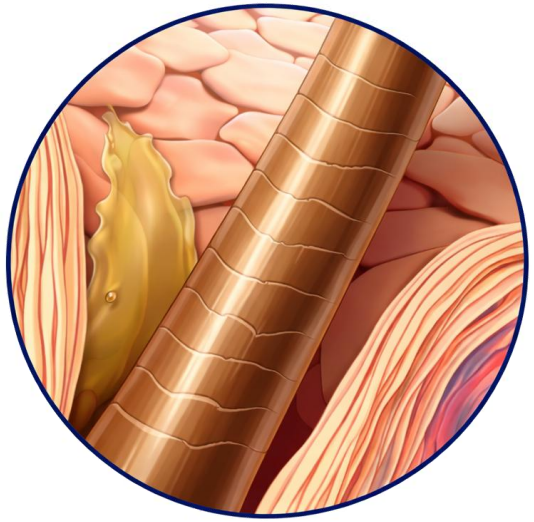
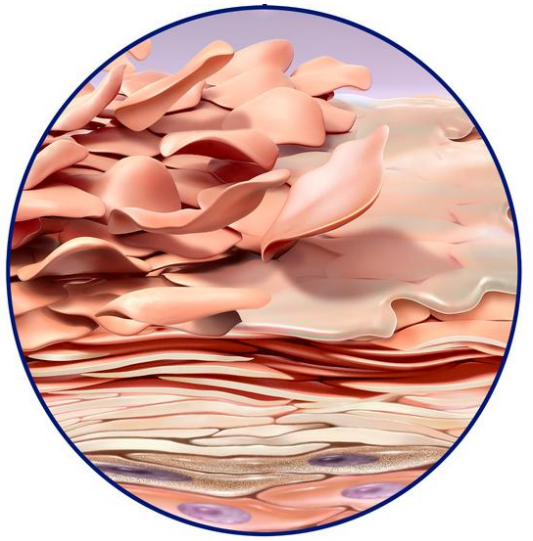


Smoothens the cuticle for ease of combing

Lightweight conditioning



Protects hair from swelling from within



Facilitates scalp desquamation



Boosts foam

Sensory enhancement

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How to use

How to use BergaCare Re-Lite

In Formulation

- Applications: Shampoos, Conditioners (rinse-off & leave-in), Hair Masks
- Viscous, yellowish solution (water-based) → dissolves in water phase
- Recommended dosage: 3%
- Can be added to water phase, surfactant phase or at the end of the production process
- Increases the viscosity of the final formulation
- Shampoos can be formulated to be transparent or translucent



How to work with

BergaCare Re-Lite combines pH adjustment and rheology modification in one ingredient

+ BergaCare Re-Lite as pH regulator in Formulations
+ BergaCare Re-Lite as viscosity enhancer

– Could lead to turbidity due to starch



Insights

- Placebo formulation has a pH of approximately 10 before pH is adjusted
- by the Use of 2% the formulation reaches a pH of approximately 3,8

Which pH should I use?

BergaCare Re-Lite

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Understanding pH & performance

+ Glycolic Acid efficacy depends on pH
+ **pH 3.8-4.3** → optimal performance (about 50% in protonated / active form)
+ Higher pH = reduced, not lost efficacy
+ **pH-independent benefits** from quaternized starch:

✓ Combing force reduction & detangling

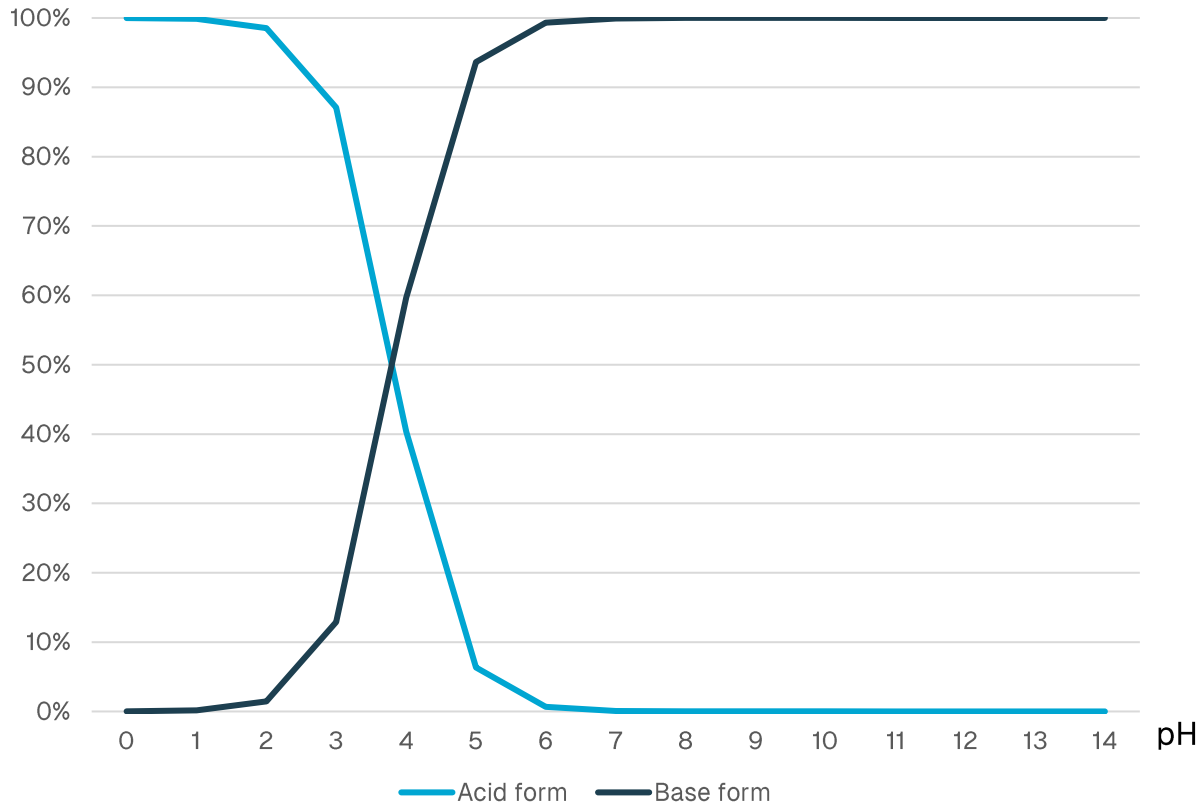
✓ Foam boosting

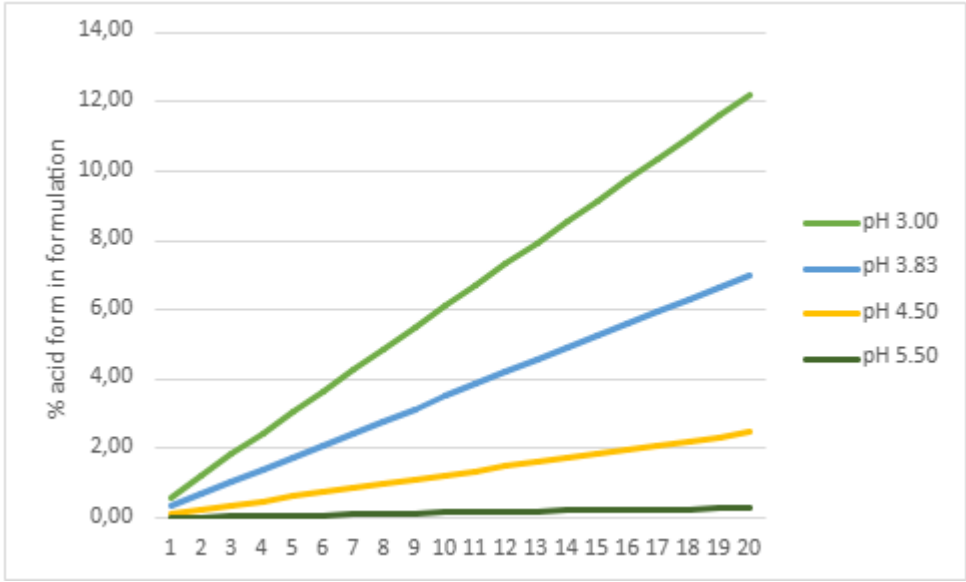
✓ Improved sensory

STERNWYWIOLGruppe

Which pH should I use?

How much free acid do I have at which pH?





Which pH should I use?

BergaCare Re-Lite

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Finding the right balance

Recommended pH levels:

- **pH 4.0:** maximum performance
- **pH 4.5:** optimal balance
- **pH 5.0:** increased mildness, still functional
- **pH 5.5:** Glycolic Acid as claim ingredient

Application matters

- **Shampoo:** higher dilution during use, application mainly to cleanse scalp area
- **Conditioner:** lower dilution, application mainly to lengths of hair
- **Leave-on:** long contact time can compensate for reduced activity at higher pH

Take-home: Chose the lowest pH your product concept allows.

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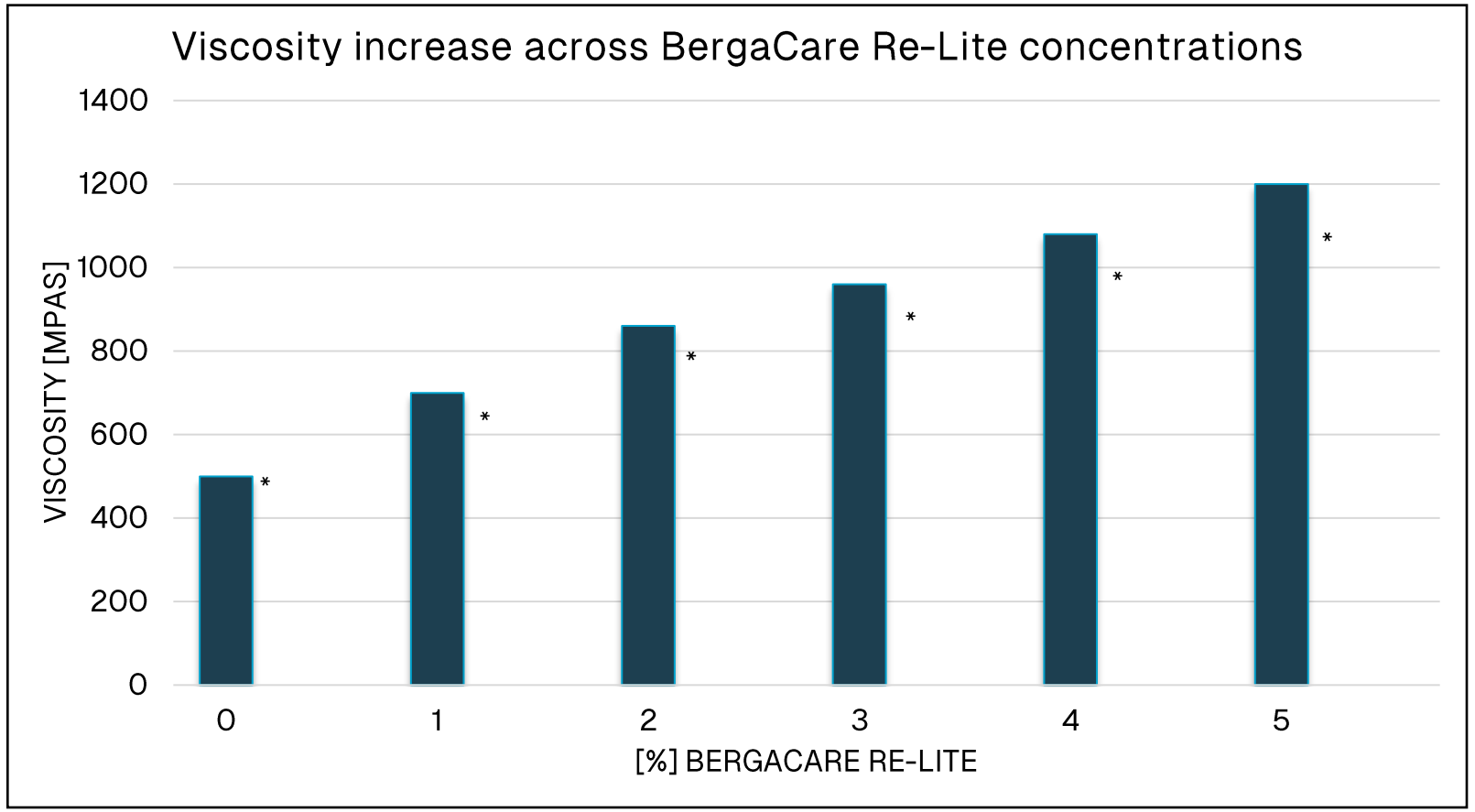
How to work with

Viscosity Comparison due to Re-Lite Concentration

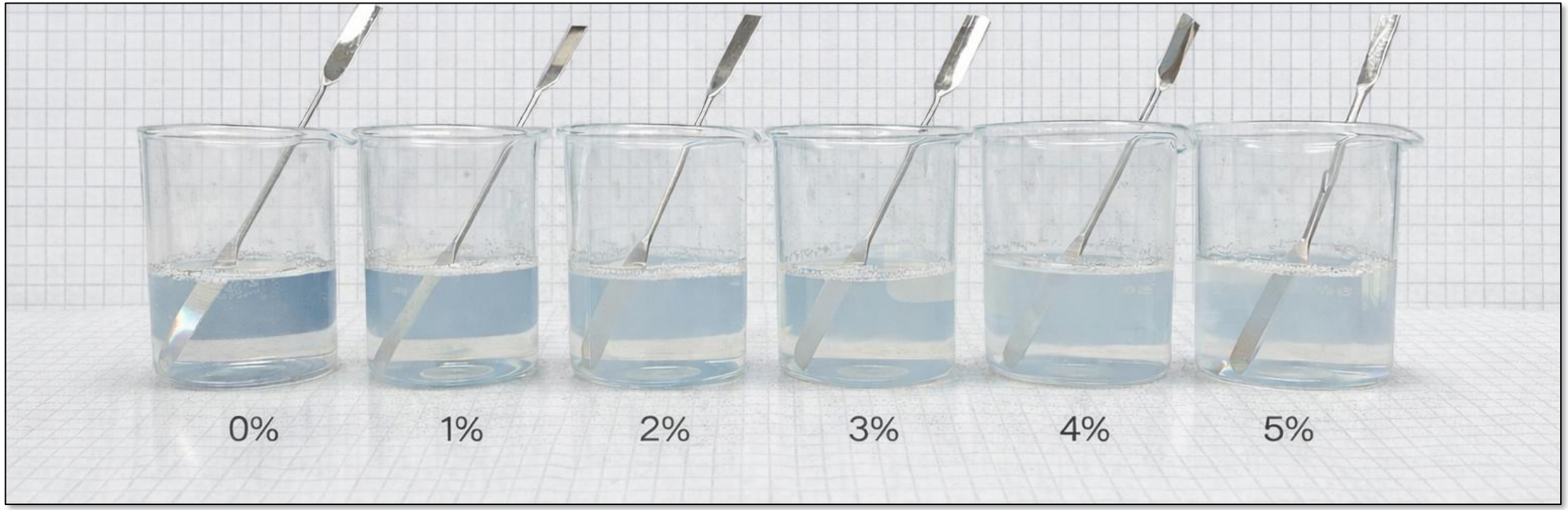


- Viscosity increase consistenly with rising BergaCare Re-Lite concentration
- Allows adjustable rheology controll on application needs

- * 1,93g Salt

How to work with

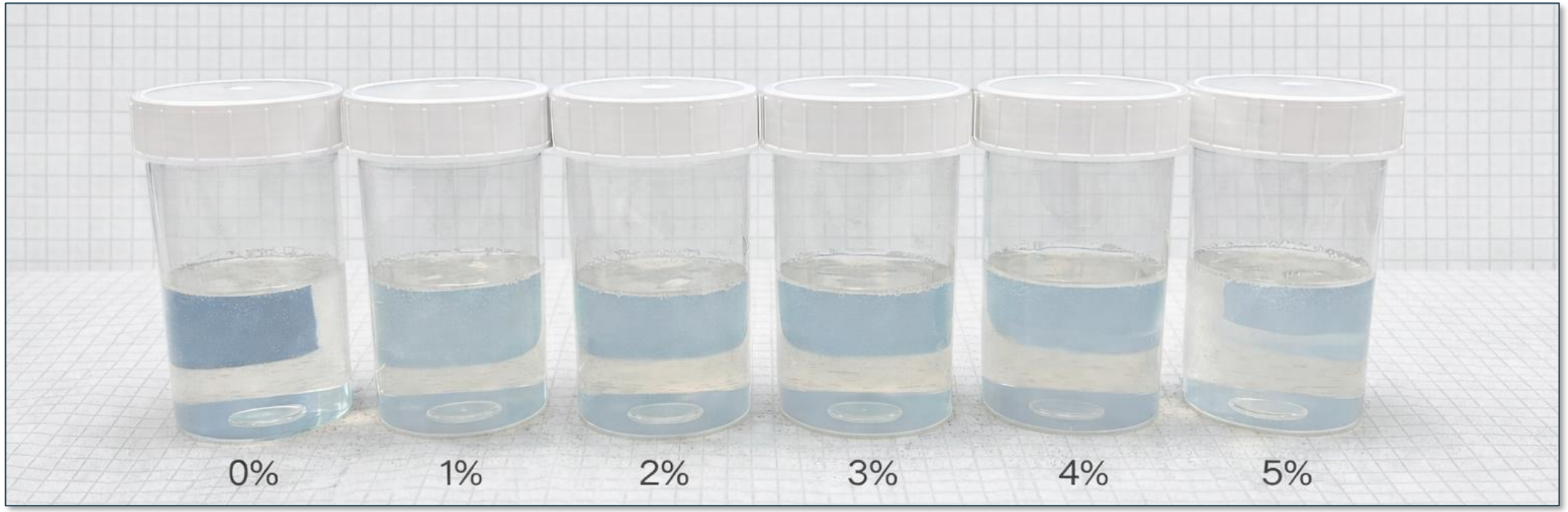
From clear to slighlty turbid (1h after manufacturing)



Turbity will apear due to the starch insight BergaCare Re-Lite. The Shampoo is still stable.

How to work with

After 3 days less turbid



Clarity Cleanse Shampoo

Light Care Shampoo with BergaCare Re-Lite

Phase	Product	INCI	Supplier	% (w/w)
A	Demin. Water	Aqua	-	Up to 100
	Glycerin	Glycerin	Various	3.00
	Cosphaderm® Pentiol Natural	Pentylene Glycol	Cosphatec	3.00
A1	BergaSoft CG50	Coco Glucoside	Berg+Schmidt	2.50
	Rosemary Oil	Rosmarinus Officinalis Leaf Oil	Various	0.05
	BergaSoft LG50	Lauryl Glucoside	Berg+Schmidt	10.00
A2	Demin. Water	Aqua	-	40.00
	Sodium Coco Sulfate	Sodium Coco Sulfate	Various	11.00
B	Citric Acid (25% aq.)	Aqua, Citric Acid	-	Adjust pH
C	BergaCare Re-Lite	Aqua, Glycolic Acid, Arginine, Starch Hydroxypropyl Trimonium Chloride, Sodium Chloride	Berg+Schmidt	3.00
D	Sodium Chloride	Sodium Chloride	-	q.s

pH = 3.80
Viscosity (24 h, Brookfield, 20 rpm) = 1460 mPas
Internal Ref.: RL-01.16-0825
Stability: Stable for 3 months at 20°C, 40°C and 4°C

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Claims

- Gentle Cleanse
- BergaCare Re-Lite reduces frizz

Manufacturing Procedure

1. Weigh Phase A into beaker.
2. Heat the water from Phase A2 to approx. 80 °C. Slowly add Sodium Coco Sulfate under stirring and allow it to dissolve completely until the mixture becomes transparent.
3. Premix Phase A1 thoroughly (including solubilizer for the fragrance; note that the essential oil is not directly interchangeable 1:1)
4. Add Phase A2 to Phase A1 and mix until uniform.
5. Add Phase A to the A1/A2 blend while stirring.
6. Adjust pH to approx. 4–5.
7. Add Phase C to the main batch under stirring.
8. Adjust the desired viscosity by slowly adding salt solution while stirring.

Pearl Kirei Shampoo

Pearlescent Shampoo for sleek and shiny hair

Phase	Product	INCI	Supplier	% (w/w)
A	Demin. Water	Aqua	-	Up to 100
	Glycerin	Glycerin	Various	3.00
	Cosphaderm® Pentiol Natural	Pentylene Glycol	Cosphatec	3.00
A1	Sodium Laureth Sulfate (70%)	Sodium Lauryl Ether Sulfate	Interchemie	15.0
	BergaSoft CG50	Coco Glucoside	Berg+Schmidt	5.00
	Cocoamidopropyl Betaine (30%)	Aqua, Cocoamidopropyl Betaine	Interchemie	25.00
	BergaCare Pearl 2	Glycol Distearate	Berg+Schmidt	3.00
A2	BergaCare Re-Lite	Aqua, Glycolic Acid, Arginine, Starch Hydropropyl Trimonium Chloride, Sodium Chloride	Berg+Schmidt	3.00
	BergaCare C-Shine Sun 6000	Oleic/Linoleic/Linolenic Polyglycerides	Berg+Schmidt	0.50
B	Rosemary Oil	Rosmarinus Officinalis Leaf Oil	Various	0.10
C	Citric Acid (25% aq.)	Aqua, Citric Acid	-	Adjust pH
D	Sodium Chloride	Sodium Chloride	-	q.s

pH = 4.30
Viscosity (24 h, Brookfield, 20 rpm) = 11.500 mPas
Internal Ref.: RL-02.5-1025
Stability: Stable for 3 months at 20°C, 40°C and 4°C
Microbiological Stability: A Krit.

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Claims

- BergaCare CG 50 to add mildness
- BergaCare Pearl 2 creates a shimmer without microplastic

Manufacturing Procedure

1. Weigh Phase A into beaker.
2. Combine Phase A1 ingredients except the pearl additive and heat to approx. 75 °C. Add the pearl component and mix until fully dissolved; the batch should turn transparent.
3. Add Phase A slowly to phase A1 under gentle, continuous stirring. Continue mixing while cooling
4. Below 45 °C the product becomes white and opaque. Crystal structures will form and develop into a stable pearl effect within 24 hours.
5. Add phase C to Phase A/A1 while stirring.
6. Add Rosemary Oil while stirring.
7. Adjust pH to 4.3.
8. Add salt if needed to adjust viscosity.

Curly Embrace Definition Conditioner

Phase	Product	INCI	Supplier	% (w/w)
A	Demin. Water	Aqua	-	Up to 100
	Glycerin	Glycerin	Various	5.00
	Cosphaderm® Pentiol natural	Pentylene Glycol	Cosphatec	5.00
	BergaCare Re-Lite	Aqua, Glycolic Acid, Arginine, Starch Hydroxypropyltrimonium Chloride, Sodium Chloride	Berg+Schmidt	3.00
	GreenGardTM PA3	Sodium Phytate, Aqua, Alcohol	GreenLine	0.10
B	Vegarol 1618 (50:50)	Cetearyl Alcohol	Berg+Schmidt	4.50
	Argan Oil	Argania Spinosa Kernel Oil	Henry Lamotte	2.00
	BergaCare SB	Butyrospermum Parkii (Shea) Butter	Berg+Schmidt	2.00
	BergaCare C-Shine 4D low	Dimer Dilinoleyl Dimer Dilinoleate	Berg+Schmidt	1.00
	VariSOFT EQ 65MB	Distearoylethyl Dimonium Chloride, Cetearyl Alcohol	Evonik	5.00
C	NaOH (25% aq.)	Aqua, Sodium Hydroxide	-	adjust pH

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Manufacturing Procedure

1. Weigh in all raw materials from phase A and start stirring.
2. Weigh in phase B and heat both phases up to 70 °C.
3. When both phases have reached the required temperature and everything has dissolved, combine phases A and B and homogenize for one minute.
4. Switch to slow stirring at 100 rpm with a paddle stirrer and continue to stir during cooling down until the texture becomes fluffy. Do not stir for too long, otherwise the texture will become too thick.
5. Adjust the pH to 3.8–4.3

pH = 3.90
Appearance: White
Viscosity (24h, Brookfield, 20 rpm) = 29,000 mPas
Internal Ref.: SHN-01.21(22)-0825
Stability: Stable for 3 months at 20°C, 40°

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Thank you!