

Product Booklet

Amylomer™ Products

Liquid starch
conditioners for
hair & skin care

V3



GRÄFECHEMIE

ADDITIVES FROM PLANT-BASED RAW MATERIALS

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«effectableyours»

Competence platform



About us

Your hair care experts –
authentic, distinctive, efficient.

We bring together the best of nature and science,
because our products not only care for all hair and
skin types, but also for the world we live in.

Economic growth must go hand in hand with environ-
mental and social sustainability, a principle we have
been committed to for over 25 years.

Innovative raw materials and modern cosmetic
concepts underpin our approach and the proof of
efficacy by «effectableyours» reflects our know-how.

We believe hair is an expression of personality and
underlines individuality.

Join us on a journey
through the
Amylomer™ world.
(Production in Germany)

Raw Material



Example: potato starch

Transparency of the supply chain

Our starch is locally grown and harvested. For more than 25 years, it has been processed into Amylomer™ products by our ISO-certified contract manufacturer in Germany.



Amylomer™: the effective film- forming alternative from naturally derived polymers

We offer hair and skin conditioning agents with improved biodegradability. Select the right product from our Amylomer™ range to achieve the best performance for your concept.

Using sustainable plant starch as our starting material, we chemically modify these natural polymers to achieve an optimal application profile for different hair and skin types.

Alternatives made from plant-based raw materials





New Product



... more about performance

Amylomer™ Care Fusion

Dual polymer technology for targeted conditioning.

Product specification

- starch: potato
- INCI: Starch Hydroxypropyl-trimonium Chloride, Starch Hydroxypropyl PG-Trimonium Chloride
- product appearance: liquid
- active content: 20.0%
- viscosity (20 °C, Brookfield): 100 – 1,000 mPa*s
- pH-value: ~4.3-6.0
- charge: cationic
- Polymer 1: degree of substitution: 0.2 / molecular weight: ~1,300 kDa
- Polymer 2: degree of substitution: 0.4 / molecular weight: ~260 kDa
- natural index: ~90%
- inherently biodegradable (OECD 302)
- aquatox (Alge): > 100 mg/l (OECD 201)

Application

shampoos · conditioners · liquid soap · body washes · skin cleansing · sprayable applications

Description of the product

Care Fusion combines two chemically modified starch polymers that work synergistically to deliver superior conditioning performance. The low-molecular-weight, highly cationic polymer selectively deposits on damaged areas of the hair, while the high-molecular-weight polymer with a lower cationic charge density smoothes the hair surface and enhances its sensory properties. Together, the two polymers have been demonstrated to provide significantly better performance than either polymer used individually.

Product Portfolio

Cationic conditioning agents

Amylomer™		Care Fusion	New Product	
INCI	Hydroxypropyl Oxidized Starch PG-Trimonium Chloride, Starch Hydroxypropyl Trimonium Chloride			
Amylomer™	CAT 531 / PF	CAT 531 AS+	Care 25	
INCI	Starch Hydroxypropyl Trimonium Chloride			
Amylomer™	HA-CAT 75	H-Care05		
INCI	Hydroxypropyl Oxidized Starch PG-Trimonium Chloride			

Non-ionic conditioning agents

Amylomer™	HA-NI
INCI	Sodium Hydroxypropyl Oxidized Starch Succinate

Amylomer™ products are:

carefully modified, biodegradable solutions are part of the range



paraben-free



not tested on animals



not genetically modified and non toxic



based on renewable sources



Product with financial
climate contribution
ClimatePartner.com/17346-2109-1001



Amylomer™ Care Fusion

Dual polymer technology for targeted conditioning.

Test results – sensory evaluation

The graph below shows the sensory profiles of:

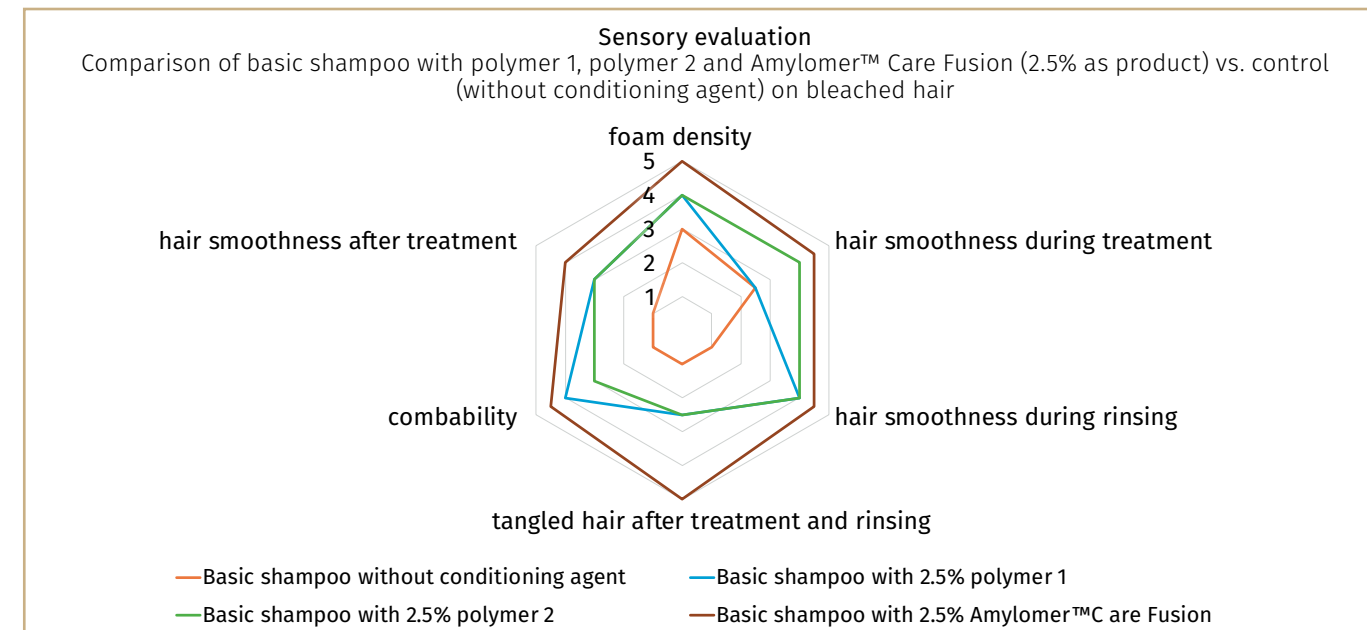
- polymer 1 and polymer 2
- Amylomer™ Care Fusion
- control (basic shampoo without conditioning agent)

The sensory evaluation was performed by experienced master hairdressers using a comparative, synchronized left-vs.-right wash test. Pre-dampened, standard European bleached hair tresses were evaluated over repeated washing cycles.

- 1 g of each test product is applied to the palm of the left and right hand.
- The hair tresses are then washed synchronously for one minute.

- After rinsing for 30 seconds, the procedure is repeated according to the individual test design (3, 5, 10 times or more).
- The parameters shown in the graph are evaluated using the following rating scale: 1 = very bad, 2 = bad, 3 = moderate, 4 = good, 5 = very good.

Amylomer™ Care Fusion outperformed the individual polymers in terms of smoothness and softness during and after treatment. Hair treated with Amylomer™ Care Fusion appeared less tangled and was easier to comb. In addition, Amylomer™ Care Fusion improved the foam properties of the tested formulation.

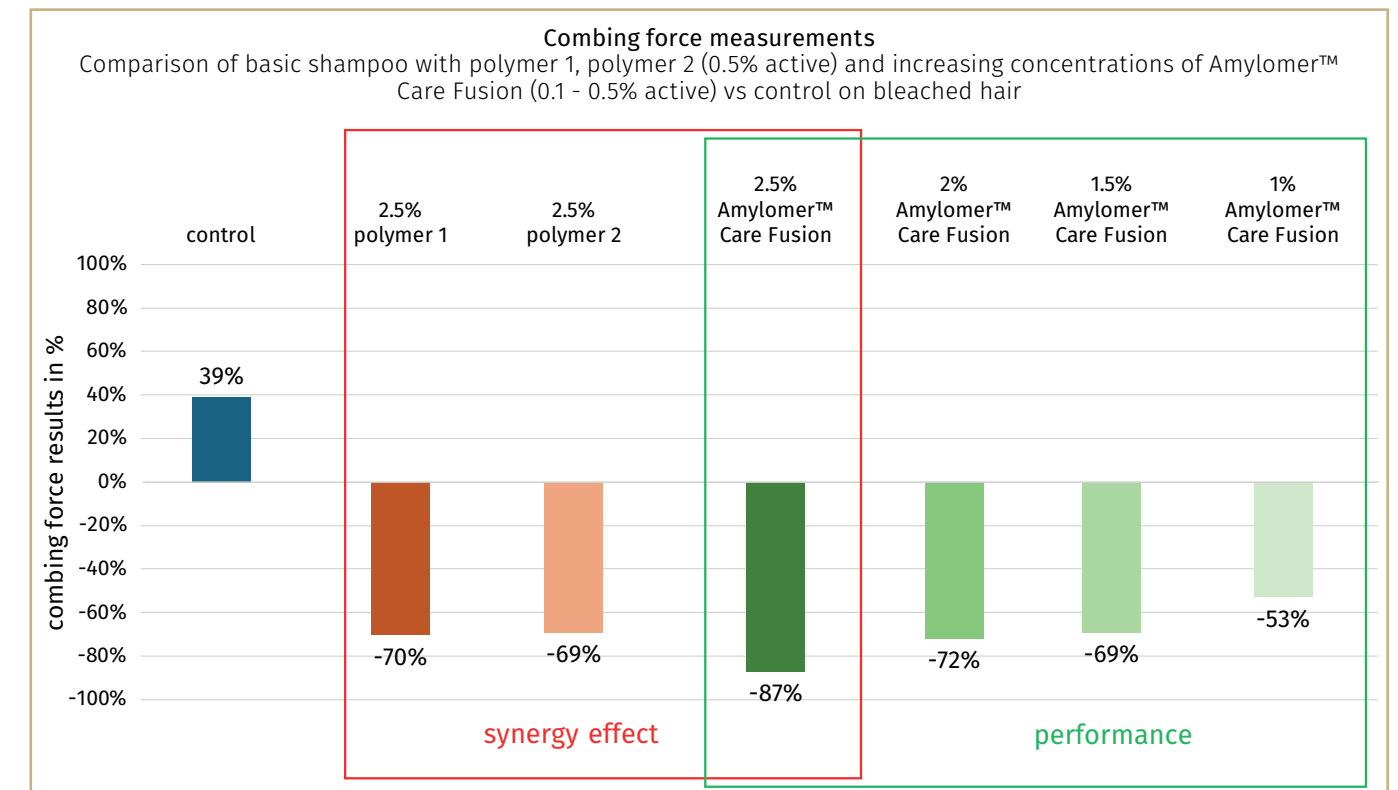


Test results – combing force measurements

Combing force measurements on the same pre-damaged hair tresses further demonstrate the synergistic performance of the polymer combination. The following graph presents the results

- with the individual polymers incorporated into the basic shampoo formulation (synergy effect) and
- with increasing concentrations of Amylomer™ Care Fusion (performance).

The results are expressed as percentages of the measured reductions in combing force. At the same use concentration, the individual polymers (1 and 2) provide a lower reduction in combing force than their combined use in Amylomer™ Care Fusion. Furthermore, a clear concentration-dependent improvement in performance is observed when the use level of Amylomer™ Care Fusion is increased.



Amylomer™ CAT 531

The universal hair and skin conditioning agent.

(CAT 531 PF without listed preservatives)

Product specification

- starch: potato
- INCI: Starch Hydroxypropyl Trimonium Chloride
- product appearance: liquid
- active content: 20.0%
- viscosity (20 °C, Brookfield): 150-500 mPa*s
- pH-value: ~3.5-4.1
- charge: cationic
- degree of substitution: ~0.5
- molecular weight: ~1,800 kDa
- natural index: ~94%
- readily biodegradable: OECD 301 (28 days) ~65%
- aquatox (Daphnia): 53 mg/L (OECD 202)

Application

shampoos · conditioners · solid bars · liquid soaps · body washes

Description of the product

This liquid conditioning agent is based on potato starch and is ideal to be used in surfactant-based applications.

On the hair, it:

- improves combability and manageability
- creates a natural, soft and well-conditioned feel
- reduces static charge
- shows synergistic effects in combination with other conditioning agents

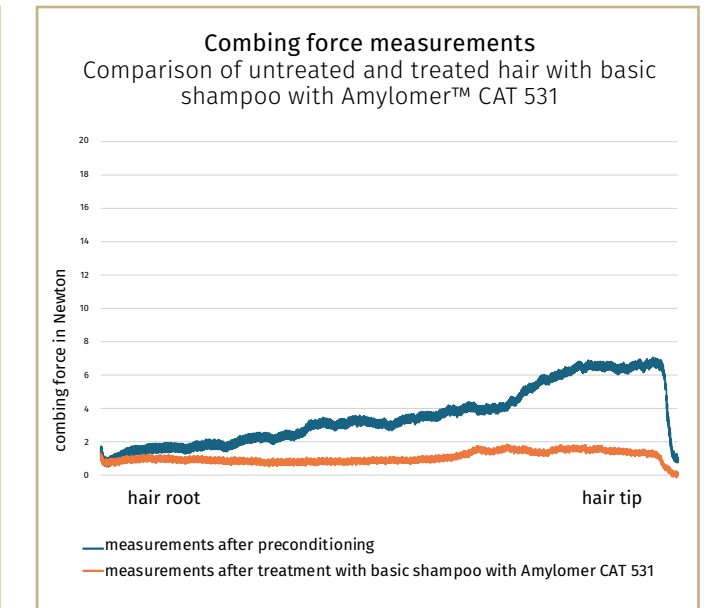
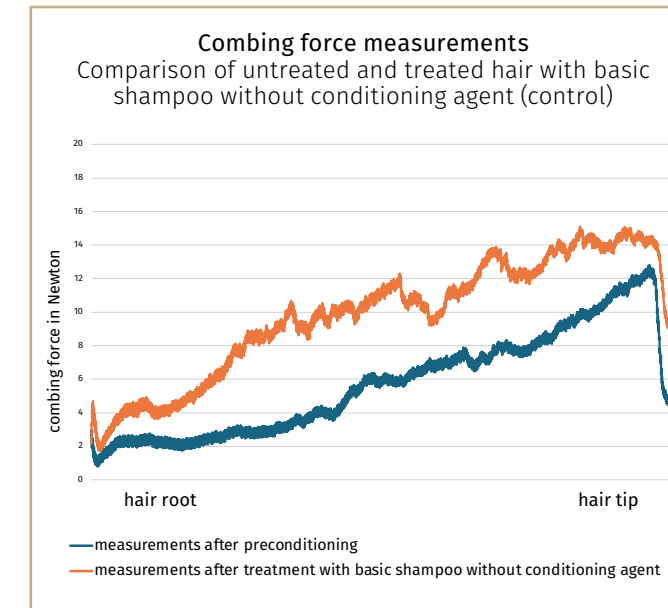
In body washes, it:

- provides a pleasant skin feel
- creates a smoother foam during application

Test results – combing force measurements and antistatic test

The graphs show the impact of Amylomer™ CAT 531 in terms of combing forces in our basic formulation.

While the basic shampoo without any conditioning agent increased combing forces, the formulation containing 0.4% active Amylomer™ CAT 531 markedly reduced combing forces.



Antistatic test

Comparison before and after 10 combing strokes of the same basic shampoo with and without Amylomer™ CAT 531.



Amylomer™ CAT 531 AS+

The sensory boosting polymer
for skin care applications.

Product specification

- starch: potato and rice
- INCI: Starch Hydroxypropyl Trimonium Chloride
- product appearance: liquid
- active content: 21.6%
- viscosity (20 °C, Brookfield): 500-1000 mPa*s
- pH-value: ~3.4-4.3
- charge: cationic
- degree of substitution: ~0.5
- molecular weight: ~5,700 kDa
- natural index: ~92%
- readily biodegradable: OECD 301 (28 days) ~65%
- aquatox (Daphnia): 53 mg/L (OECD 202)

Application

liquid soaps · body lotions · solid bars · body washes · cleansing

Description of the product

A synergistic combination of potato and rice starch creates the unique characteristics of this liquid conditioning agent. It is suitable for both leave-on and rinse-off applications.

On the skin, it:

- improves sensory properties
- provides a silky-smooth skin feel during application

In rinse-off formulations, it:

- improves foam creaminess
- shows synergistic effects in combination with other conditioning agents

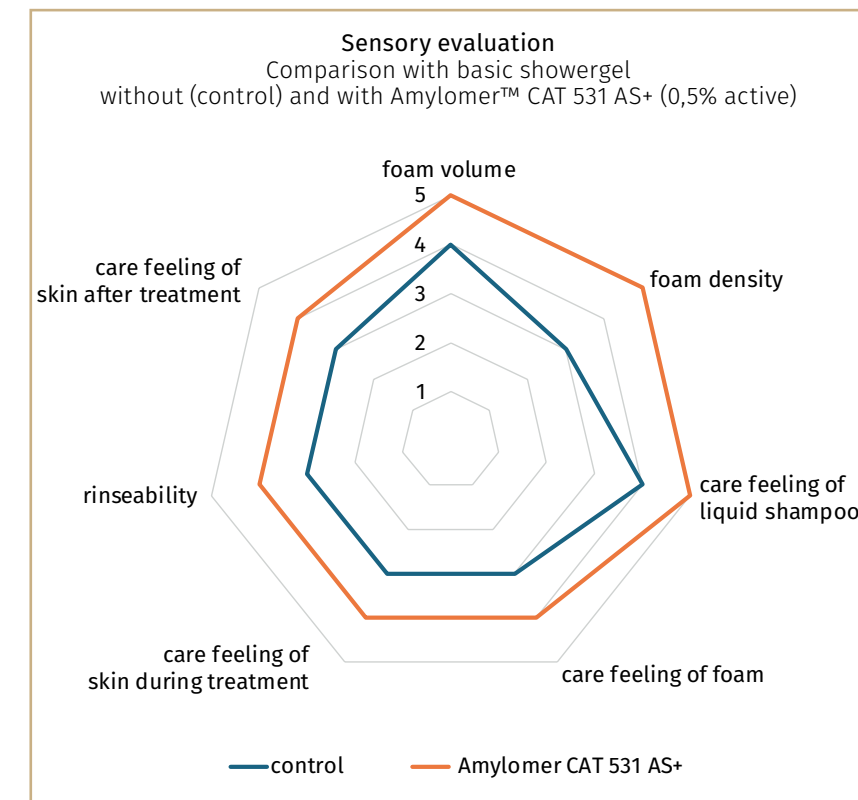
Test results – foam and sensory evaluation

The pictures and graph illustrate the effect of Amylomer™ CAT 531 AS+ on foam properties in a surfactant system.

In the test, the surfactant system containing Amylomer™ CAT 531 AS+ produced a foam that was:

- creamier
- denser
- firmer
- more robust

The sensory evaluation also showed that Amylomer™ CAT 531 AS+ remarkably improves the sensory properties on the skin.



basic shampoo without conditioning agent



basic shampoo with Amylomer™ CAT 531 AS+



Amylomer™ Care 25

The eco-friendly hair and skin conditioning agent.

Product specification

- starch: potato
- INCI: Starch Hydroxypropyl Trimonium Chloride
- product appearance: liquid
- active content: 19.6%
- viscosity (20 °C, Brookfield): 400-800 mPa*s
- pH-value: ~3.5-4.1
- charge: cationic
- degree of substitution: ~0.25
- molecular weight: ~1,800 kDa
- natural index: ~93%
- readily biodegradable: OECD 301 (28 days) ~73%
- aquatox (Algae): 10-100 mg/L (OECD 201)

Application

shampoos · conditioners · solid bars · body washes · liquid soaps · cleansing · body lotions

Description of the product

Made from potato starch, this carefully derived, naturally based conditioning agent is designed for both hair and skin applications.

On the hair, it:

- delivers high conditioning performance
- is ideal for sensitive and fine hair
- shows synergistic effects in combination with other conditioning agents

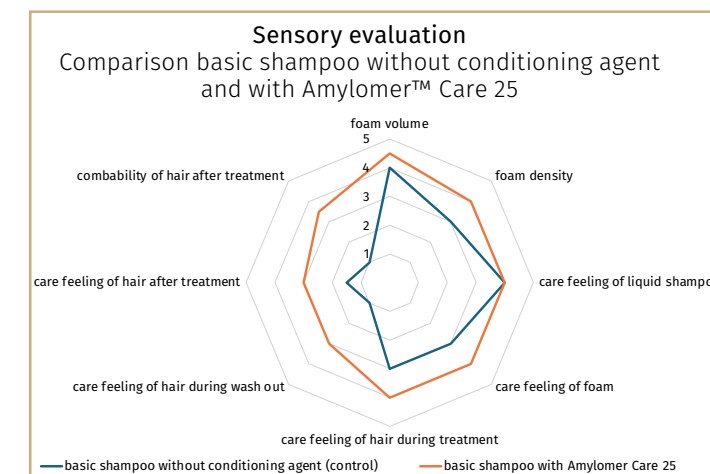
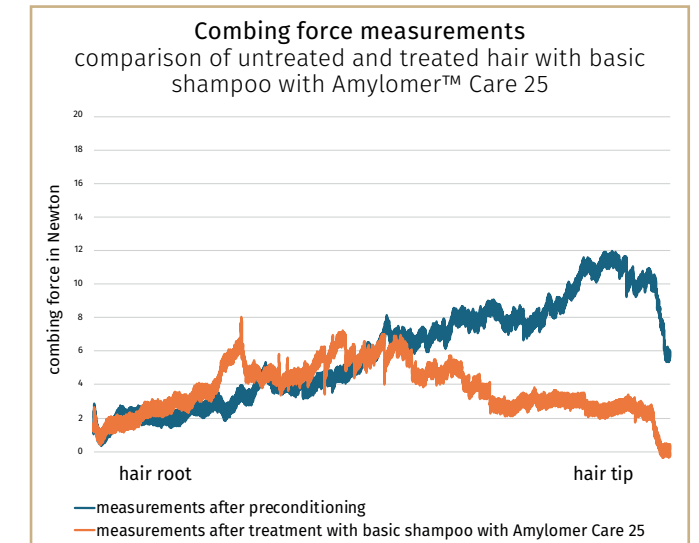
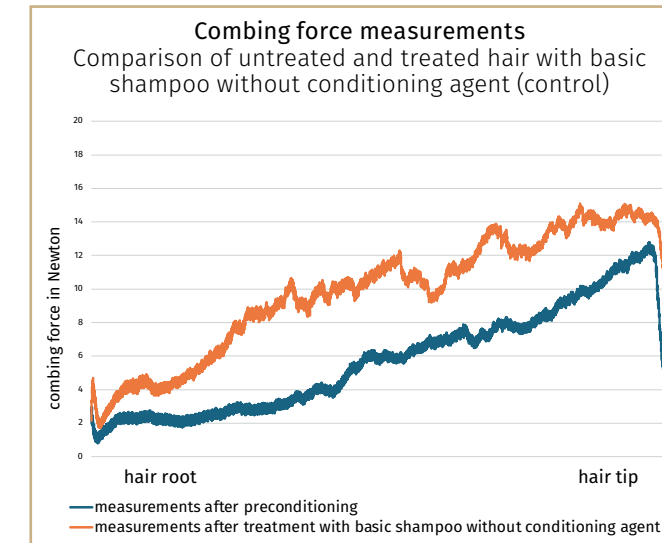
It also:

- meets the demand for modern, sustainable and readily biodegradable raw materials
- combines the principles of ISO 16128 with the desired performance on hair



Test results – combing force measurements and sensory evaluation

The low cationic charge of the polymer offers two key benefits: it supports excellent biodegradability while forming a delicate, lightweight film on the hair surface. To evaluate the resulting conditioning performance, combing force measurements were conducted. As shown in the graph on the left, the basic shampoo without conditioning agent increases combing forces. In contrast, 0.4% active Amylomer™ Care 25 provides targeted conditioning, with its effect being particularly evident on the porous section of the hair. Amylomer™ Care 25 is therefore an ideal choice for formulations designed to stay as close to nature as possible.



The sensory evaluation was performed by experienced master hairdressers. Basic shampoo with Amylomer™ Care 25 and the control without conditioning agent were applied and emulsified on the hair tresses for one minute. The parameters shown in the graph were evaluated on a scale from 1 (very bad) to 5 (very good). Amylomer™ Care 25 demonstrates distinctive sensory properties, including easier combing and a more pleasant cosmetic feel during application. A positive effect on hair manageability can be expected. The graph illustrates the differences compared with the control formulation.

Amylomer™ HA-CAT 75

The high-performance hair conditioning agent.

Product specification

- starch: potato
- INCI: Hydroxypropyl Oxidized Starch PG Trimonium Chloride
- product appearance: liquid
- active content: 29.0%
- viscosity (20 °C, Brookfield): 350-500 mPa*s
- pH-value: ~3.5-4.1
- charge: cationic
- degree of substitution: ~0.75
- molecular weight: ~1,300 kDa
- natural index: ~83%
- inherently biodegradable (OECD 302)
- aquatox (Algae): 10-100 mg/L (OECD 201)

Application

shampoos · body washes · conditioners

Description of the product

This liquid conditioning agent is based on potato starch. With the highest degree of cationization within the Amylomer™ range, it provides the strongest conditioning effect and the most noticeable sensory effect on the hair.

On the hair, it:

- reduces combing forces and provides good grip
- leaves a natural feel without build-up
- cares for and protects without weighing it down
- shows synergistic effects in combination with other conditioning agents

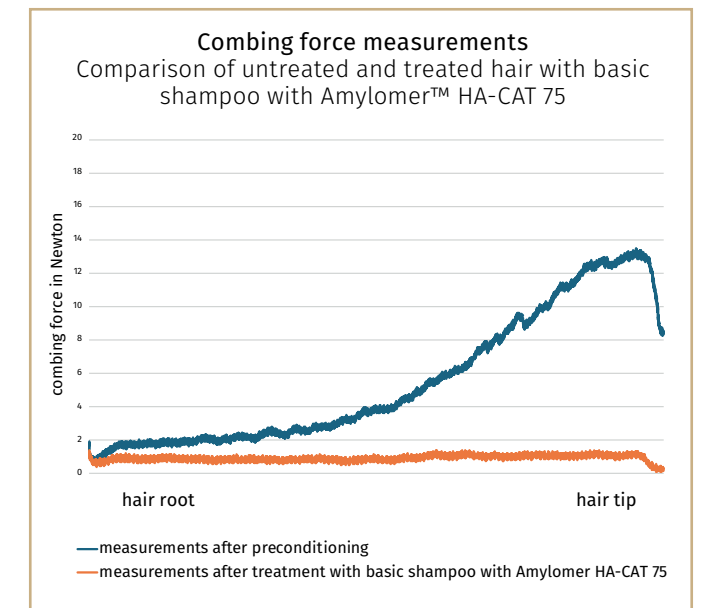
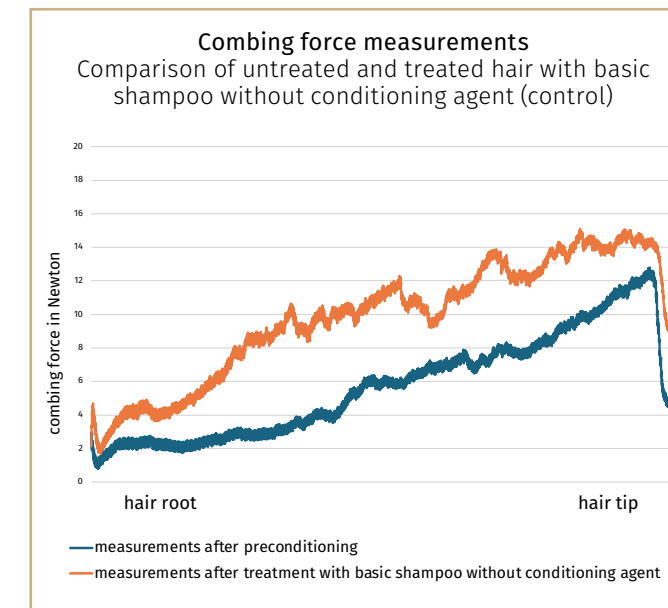
Ideal for:

- daily-use applications
- thick and heavily damaged hair



Test results – combing force measurements

The graphs show combing force measurements on two hair tresses, comparing results before and after treatment with 0.4% active Amylomer™ HA-CAT 75. Amylomer™ HA-CAT 75 smooths the rough hair cuticle, significantly reducing combing forces and helping to protect the hair from further damage.





Amylomer™ H-Care05

Low cationic loaded for specific hair and skin applications.

Product specification

- starch: potato
- INCI: Hydroxypropyl Oxi-dized Starch PG Trimonium Chloride
- product appearance: liquid
- active content: 26.2%
- viscosity (20 °C, Brookfield): 200-500 mPa*s
- pH-value: ~3.5-4.1
- charge: cationic
- degree of substitution: ~0.05
- molecular weight: ~1,000 kDa
- natural index: ~99%
- inherently biodegradable (OECD 301)
- aquatox (Algae): 10-100 mg/L (OECD 201)

Application

shampoos (especially for curly hair) · body washes · face cleans-ing · pump soaps

Description of the product

This liquid conditioning agent is based on potato starch. With the lowest degree of quaternisation within the Amylomer™ range, it is specifically designed for use in “no tears” formulations.

Ideal for:

- eye care
- intimate care
- sensitive skin
- daily-use applications

It provides:

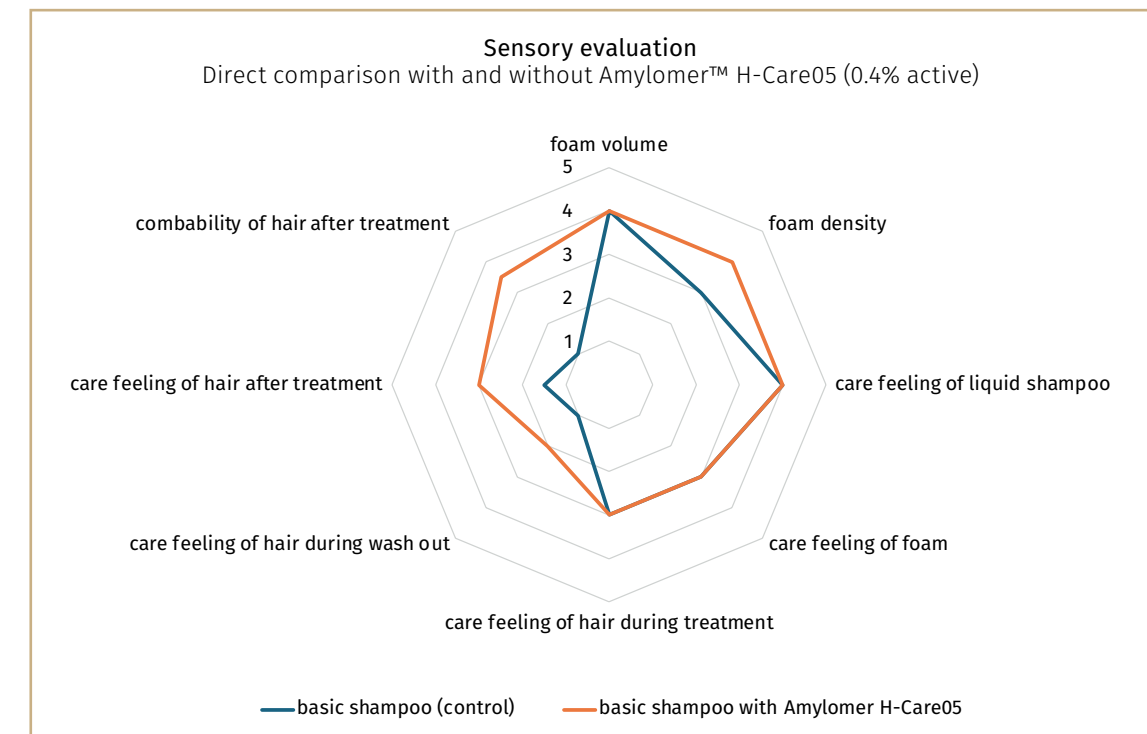
- light conditioning properties



Test results – sensory evaluation

The following graph shows the result of the sensory evaluation. 1g basic shampoo without conditioning agent and with Amylomer™ H-Care05 is foamed up in wet hands of experienced testers for one minute, and rated from 1 = very bad to 5 = very good. This process is repeated 5 times.

The conditioning agent Amylomer™ H-Care05 impresses with its unique sensory properties, it makes the hair easier to comb and shows a very good compatability with surfactants. The following diagram attempts to illustrate the differences without conditioning agent.





Amylomer™ HA-NI

The mild non-ionic polymer for sensitive skin.

Product specification

- starch: potato
- INCI: Sodium Hydroxypropyl Oxidized Starch Succinate
- product appearance: liquid
- active content: 23.6%
- viscosity (20 °C, Brookfield): 200-600 mPa*s
- pH-value: ~4.6-5.2
- charge: non-ionic
- degree of substitution: ~0.02
- molecular weight: ~1000 kDa
- natural index: ~92%
- readily biodegradable: OECD 301 (28 days) ~62%
- aquatox (Algae): >100 mg/L (OECD 201)

Application

baby shampoos · body washes and liquid soaps for sensitive skin
· body lotions

Description of the product

This liquid conditioning agent is the only non-ionic potato starch derivative within the Amylomer™ range. It is ideal for sensitive skin and baby care applications.

It provides:

- mild and non-irritating properties
- light conditioning

Due to its non-ionic character, it offers:

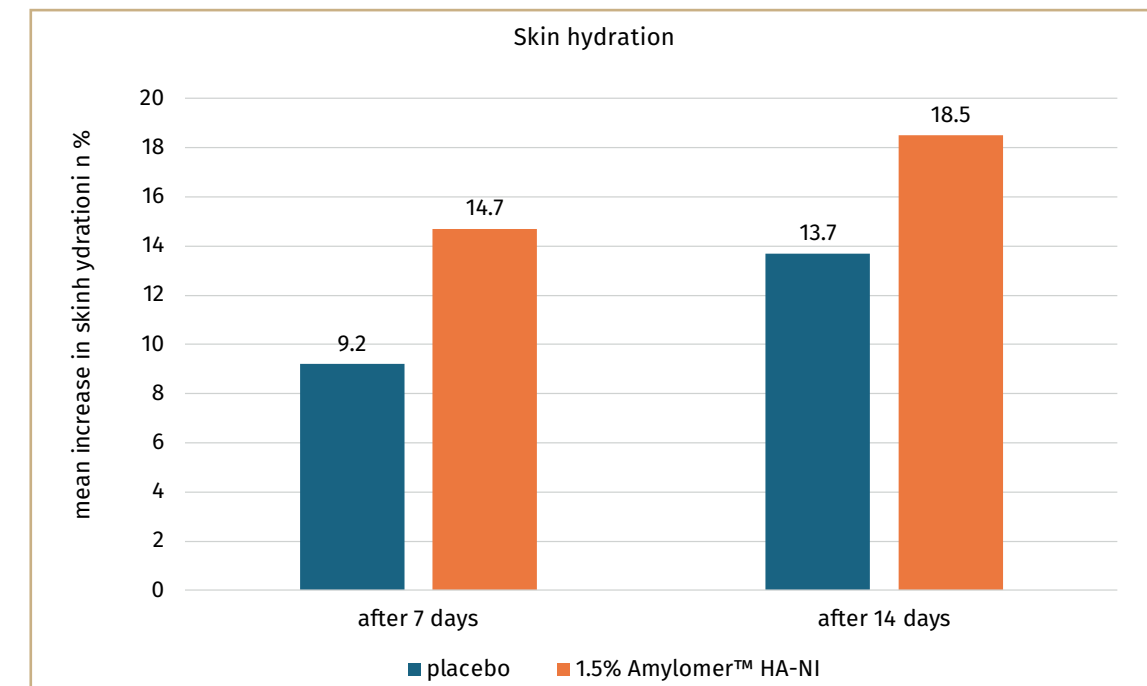
- good compatibility with salt-tolerant emulsifiers
- good compatibility with gelling agents

Test results – skin hydration test and epicutaneous test

This graph shows the result of the skin hydration (Corneometer CM 825 PC from Courage+Khazaka) of an in-vivo study on 20 volunteers.

The measurement was executed after a period of 2 weeks using a body lotion placebo and a body lotion containing 1.5% Amylomer™ HA-NI.

The hydration of the skin treated with the body lotion containing the Amylomer™ HA-NI was significantly improved after 7d and 14d.



In addition, skin compatibility was tested in an epicutaneous test conducted on 20 volunteers in accordance with the international guidelines of the ICDRG over a period of 72 hours.

The results show that no irritative (toxic and allergic) reactions occurred.



Properties and Applications

Overview from page 9 – 23

Amylomer™	shampoo	conditioner	body wash	liquid soap	cleansing	body lotion	conditioner spray	solid bar	hand cream
Care Fusion Dual polymer technology for targeted conditioning	◆	◆	◆	◆			◆		
CAT 531 Universal hair and skin conditioning agent	◆		◆				◆	◆	
CAT 531 PF Universal hair and skin conditioning agent	◆		◆				◆	◆	
CAT 531 AS+ Sensory boosting polymer for skin care		◆	◆	◆	◆	◆		◆	◆
Care 25 Eco friendly hair and skin conditioning agent	◆		◆	◆	◆	◆			
H-Care05 "no tears" Low cationic loaded for specific hair and skin applications			◆	◆*	◆				
HA-CAT 75 High-performance hair conditioning agent	◆	◆	◆				◆		
HA-NI "no tears" Mild non ionic polymer for sensitv hair and skin			◆**	◆**		◆			◆

* pump soap ** for sensitive skin/baby wash

New Product



Different chemical modifications, molecular weight and degrees of substitution provide a wide range of different properties for conditioning different hair types and applications



For conditioning different hair types:



straight



wavy



curly



coily



kinky

... from fine to strong hair.

Formulation Advice

- easy to use in laboratory and production scale
- no predilution is required
- dosage: 1-5%
- can be used at any pH, preferably pH 3-8
- can be added at any production step
- allows cold production process
- electrolyte content and cationic charge may have an impact on viscosity and stability of the formulation



Benefits

Formulator

- ideal for surfactant-based formulations
- highly compatible with other raw materials
- excellent oxidation stability
- synergistic with other conditioning agents
- uncritical sources and starting material
- safe availability
- unique sensory profile
- improved biodegradability
- ideal for formulations according to the ISO 16128

Consumer

- hair conditioning without build-up effect
- reversible filmforming
- improves smooth, creamy foam quality
- improves combability
- reduces electrostatic charge
- does not penetrate the skin
- protects the hair from external influences

Production

- manufactured in Germany
- liquid state allows automatic dosing and simple mixing
- no prior dilution required
- simple storage
- available in pails, drums or IBCs
- suitable for cold processes
- improved biodegradability
- negligible ecotoxicity



Packaging Unit and Storage

Our products are available worldwide.

Our products are available in various container sizes:

- 22 kg pail
- 210 kg drum
- 1,100 kg IBC

Storage

- temperature: between 5 °C - 25 °C in original closed package
- shelf life: 24 months



From Hamburg to the World

The development of our products and our formulations have taken place in one of the greenest cities in the world ... Hamburg!

Meet our formulations powered by our in-house competence center



- Caring **Sankt Pauli** Shampoo
- Foamy **Blankenese** Shampoo
- Mild **Sternschanze** Shampoo
- Balancing **Rissen** 2in1 Shampoo
- Creamy Solid Bar **Winterhude** Shampoo
- Calming **Ottensen** Baby Body Wash
- Rich **Altona** Shower Gel
- Sulfate-free **Jenfeld** Liquid Hand-Soap
- Velvety **Niendorf** Face Cleansing Foam
- Harmonizing **Eilbek** Hair & Skin Tonic
- Nourishing **Uhlenhorst** Conditioner
- Soft **Heimfeld** Curl Defining Spray
- Smooth **Neustadt** Hand Cream
- Protective **Gut Moor** Hand Cream
- Sensitive **Eppendorf** Body Lotion
- Soothing **Wandsbek** After Shave



Caring **Sankt Pauli** Shampoo

A clear shampoo with a caring and voluminous foam that provides particularly mild cleansing. The shampoo gives the hair good grip and a light-care feel.

Shampoo – natural surfactant system 1762-0008				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	64.90
A	Sulfopon® 1216 G	Sodium Coco-Sulfate	BTC	6.40
A	Dehyton® PK 45	Cocamidopropyl Betaine	BTC	4.80
A	Plantacare® 818 UP	Coco-Glucoside	BTC	18.40
A	Sodium Benzoate	Sodium Benzoate	Tilge Robert E.M.	0.30
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.20
B	Inutec® H25P	Inulin	C.H. Erbslöh	1.00
B	Amylomer™ CAT 531	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	2.00
B	Amylomer™ HA-NI	Sodium Hydroxypropyl Oxidized Starch Succinate	Gräfe Chemie	0.50
C	Citric Acid	Citric Acid	Azelis	1.50

Processing

- Mix ingredients of phase A in given order and heat up to 60 °C until completely dissolved.
 - At max. 45 °C mix ingredients of phase B in given order, until everything is homogeneous.
 - Adjust pH with phase C.
 - If desired: Increase viscosity by adding sodium chloride.
- appearance: clear shampoo
 - pH-value: 4.3 – 4.7
 - viscosity: ~11,000 mPa*s (Haake, 22 °C, RV4, 10rpm)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Foamy **Blankenese** Shampoo

A clear shampoo with a light and voluminous foam. This shampoo provides a high conditioning effect and leaves the hair with a natural, light-care feel without any build-up.

Shampoo – classic surfactant system 1762-0011-05				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	53.24
A	Dehyton® K	Cocamidopropyl Betaine	BTC	12.38
A	Texapon® NSO UP	Sodium Laureth Sulfate	BTC	27.75
A	Plantacare® 818 UP	Coco-Glucoside	BTC	4.13
A	Sodium Benzoate	Sodium Benzoate	Tilge Robert E.M.	0.30
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.20
A	Amylomer™ HA-CAT 75	Hydroxypropyl Oxidized Starch PG Trimonium Chloride	Gräfe Chemie	1.40
B	Citric Acid	Citric Acid	Azelis	0.60

Processing

- Mix ingredients step by step in given order, until completely dissolved and homogeneous distributed.
 - Adjust pH with phase B.
 - If desired: Increase viscosity by adding sodium chloride.
- appearance: clear shampoo
 - pH-value: 4.3 – 4.7
 - viscosity: ~7,000 mPa*s (Haake, 22 °C, RV4, 10rpm)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Mild Sternschanze Shampoo

A clear shampoo with a stable and voluminous foam that provides particularly mild cleansing. The shampoo gives dry hair very good shine without static charge.

Shampoo – natural surfactant system 11762-0003-1				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	66.40
A	Plantacare® 818 UP	Coco-Glucoside	BTC	18.40
A	Dehyton® PK 45	Cocamidopropyl Betaine	BTC	4.80
A	Sulfopon® 1216 G	Sodium Coco-Sulfate	BTC	6.40
A	Sodium Benzoate	Sodium Benzoate	Tilge Robert E.M.	0.30
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.20
B	Amylomer™ Care 25	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	2.00
C	Citric Acid	Citric Acid	Azelis	1.50

Balancing Rissen 2in1 Shampoo

A highly effective conditioning shampoo that provides targeted conditioning to damaged areas of the hair. It reduces combing force and leaves the hair noticeably smoother and more manageable.

2in1 shampoo – creamy conditioning shampoo 26-001-R1-06				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	62.30
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.20
A	Texapon® N 70	Sodium Laureth Sulfate	Evonik	14.00
A	Dehyton® K	Cocamidopropyl Betaine	Evonik	14.00
B	Lanette® 16	Cetyl Alcohol	BTC	1.00
B	Tegin® G 1100	Glycol Distearate	BTC	1.50
B	Citropol® H	Polycitronellol	BTC	0.50
C	Amylomer™ Care Fusion	Hydroxypropyl Oxidized Starch PG Trimonium Chloride; Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	2.00
C	dermosoft® OMP	Methylpropanediol; Caprylyl Glycol; Phenylpropanol	Evonik	4.00
D	Citric Acid	Citric Acid	Carl Roth	q. s.
D	Sodium Chloride	Sodium Chloride	Carl Roth	0.50



Processing

- Mix ingredients of phase A step by step in given order and heat up to 60 °C.
 - At 45 °C mix phase B to phase A.
 - Adjust pH with phase C.
 - If desired: Increase viscosity by adding sodium chloride.
- appearance: clear shampoo
 - pH-value: 4.3 – 4.7
 - viscosity: ~8,000 mPa*s (Haake, 22 °C, RV4, 10rpm)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Processing

- Use warm water of approx. 60 °C and dissolve ingredients of phase A in given order.
 - Melt ingredients of phase B at approx. 70 °C and add to phase A using high force stirring.
 - Cool down to approx. 40°C under low force stirring and add ingredients of phase C.
 - Adjust pH with phase D.
- appearance: white, creamy emulsion-like shampoo
 - pH-value: 5.2 – 5.4
 - viscosity: ~12,000 mPa*s (Lamy RV, Spindel 4, 10 rpm, 1 °C)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Creamy Solid Bar Winterhude Shampoo

A creamy, white solid bar with a caring and voluminous foam that provides particularly mild cleansing. The shampoo offers natural, light care without any build-up effect. Particularly well suited for fine and normal hair as well as European hair.

Solid bar - sulfate-free surfactant system 1762-0072				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Elfan® AT 84 G - Powder	Sodium Cocoyl Isethionate	Azelis	41.25
A	Lanette® O	Cetearyl Alcohol	BTC	20.00
A	Dermofeel® Viscolid MB	Hydrogenated Vegetable Oil	Evonik	10.00
A	Sunflower Oil High Oleic	Helianthus Annuus Hybrid Oil	All Organic Treasures	8.00
B	Dermosoft® GMCY MB	Glyceryl Caprylate	Evonik	0.25
B	Glycerin 99%	Glycerin	All Organic Treasures	8.00
C	Dehyton® PK 45	Cocamidopropyl Betaine	BTC	6.00
C	Citric Acid	Citric Acid	Caesar & Loretz	1.00
C	Amylomer™ CAT 531	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	5.00
C	Fragrance – floral fruity	Fragrance	Nöring Naturprodukte	0.50

Processing

- Mix ingredients of phase A in given order and heat up to 85 °C until completely dissolved.
 - Mix phase B extra and add to phase A.
 - Add ingredients of phase C in given order to phase A and heat up to 85 °C until completely dissolved.
 - Add the mixture into a mould and possibly press.
- appearance: white solid bar
 - pH-value: N/A
 - viscosity: N/A
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Calming **Ottensen** Baby Body Wash

A clear, viscous shampoo. Mild and non-irritating, it offers light care properties for sensitive skin and baby care.

Baby body wash – mild surfactant system KB-0002				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	38.05
A	Rewoteric® AM C MB (25%)	Sodium Cocoamphoacetate	Evonik	12.80
A	Tego® Natural Betain	Betaine	Evonik	2.50
A	Tego® Betain F 50	Cocamidopropyl Betaine	Evonik	13.20
A	Plantacare® 818 UP	Coco-Glucoside	BTC	6.00
A	Hostapon® SCI P (85%)	Sodium Cocoyl Isethionate	Clariant	2.50
B	Lamesoft® PO 65	Coco-Glucoside (and) Glyceryl Oleate	BTC	1.00
B	Glycerin (99%)	Glycerin	All Organic Treasures	2.50
B	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.15
B	Sodium Benzoate	Sodium Benzoate	Tilge Robert E.M.	0.50
C	Water	Aqua	-	16.00
C	Amylomer™ HA-NI	Sodium Hydroxypropyl Oxidized Starch Succinate	Gräfe Chemie	2.00
C	Euperlan® NL Pearl	Hydrogenated Vegetable Oil (and) Cocamidopropyl Betaine (and) Glyceryl Oleate	BTC	2.00
D	Citric Acid	Citric Acid	Caesar & Loretz	0.80

Processing

1. Mix ingredients of phase A in given order and heat up to 50 °C until completely dissolved.
 2. Add ingredients of phase B in given order to phase A.
 3. In a separate vessel mix ingredients of phase C together and when completely dissolved, add to the main mixture.
 4. Adjust pH with phase D.
- appearance: pearly body wash
 - pH-value: 4.9 – 5.5
 - viscosity: ~7,000 mPa*s (Haake, 22 °C, RV4, 10rpm)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Rich **Altona** Shower Gel

A rich and nourishing shower gel with creamy foam and a silky-smooth skin feel.

Shower gel – natural surfactant system 1762-0090-2				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	38.65
A	Cosphaderm® Sodium LAAS	Sodium Anisate (and) Sodium Levulinate	Cosphatec	1.00
A	Sulfopon® 1216 G	Sodium Coco-Sulfate	BTC	6.00
B	Plantacare® 818 UP	Coco-Glucoside	BTC	20.00
B	Amisoft® CS 22	Disodium Cocoyl Glutamate (and) Sodium Cocoyl Glutamate (and) Water	Ajinomoto Co.	5.00
B	Glycerin 99%	Glycerin	All Organic Treasures	2.00
C	Water	Aqua	-	10.00
C	Amylomer™ CAT 531 AS+	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	3.00
D	Water	Aqua	-	10.00
D	Bio Worlée Aloe IF 200x FD	Aloe Barbadensis Leaf Juice Powder	Worlee	0.05
E	Lamesoft® PO 65	Coco-Glucoside (and) Glyceryl Oleate	BTC	1.00
E	The saint/white wedding	Fragrance	Frey + Lau	0.50
F	Citric Acid	Citric Acid	Caesar & Loretz	0.80
F	Sodium Chloride	Sodium Chloride	Carl Roth	2.00

Processing

1. Mix ingredients of phase A in given order and heat up to 60 °C until completely dissolved.
 2. Add ingredients of phase B in given order to phase A.
 3. Mix phase C, D and E separately together and add in given order to the main mixture.
 4. Adjust pH and viscosity with phase F.
- appearance: clear shower gel
 - pH-value: 4.9 – 5.5
 - viscosity: ~3,000 mPa*s (Haake, 22 °C, RV4, 10rpm)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed



Sulfate-free **Jenfeld** Liquid Hand Soap

An ultra-mild, sulfate-free surfactant base that gently cleanses the hands without drying them out.

Liquid hand soap – sulfate-free surfactant system 25-005-02-04-C				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	61.14
A	Sodium Benzoate	Sodium Benzoate	Tilge Robert E.M.	0.50
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M	0.20
A	Plantacare® 818	Coco-Glucoside	BTC	3.30
A	Plantacare® 2000	Decyl Glucoside	BTC	8.80
A	Dehyton® PK 45	Cocamidopropyl Betaine	BTC	15.00
A	Hostapon® SCI 85P	Sodium Cocoyl Isethionate	Clariant Int.	5.00
A	Tego® Natural Betaine	Betaine	Evonik	2.00
A	Lamesoft® PO 65	Coco Glucoside, Glyceryl Oleate	BTC	1.00
B	Amylomer™ CAT 531 AS+	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	2.00
B	Amylomer™ HA-NI	Sodium Hydroxypropyl Oxidized Starch Succinate	Gräfe Chemie	1.00
C	Unicert Yellow 08005-J (sol 0.1%)	CI 19140	Sensient Cosm. Tech.	0.02
C	Unicert Blue 05601-J (sol 0.1%)	CI 42090	Sensient Cosm. Tech.	0.04
C	Citric Acid	Citric Acid	Carl Roth	q. s.
C	Sodium Chloride	Sodium Chloride	Carl Roth	q. s.

- Processing
1. Use warm water of approx. 60 °C and dissolve ingredients of phase A in given order.

2. Add ingredients of phase B.

3. Adjust pH and viscosity with phase D if necessary.
- appearance: slightly hazy, light green viscous liquid

• pH-value: 5.2 – 5.4

• viscosity: ~6,000 mPa*s (Lamy RV, Spindel 4, 10 rpm, 21 °C)

• stability: proven (3 months at room temperature, 4 °C and 40 °C)

• microbiological challenge test: passed

Velvety **Niendorf** Face Cleansing Foam

A face cleanser with a pleasantly soft and creamy foam that supports moisture binding and leaves the skin noticeably smooth and supple.

Face cleansing foam – mild and skin friendly cleanser 25-005-06-03				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	75.00
A	Rheance® one	Glycolipids	Evonik	6.00
A	Tego® Remo 95 MB	Sorbitan Caprylate; Glyceryl Oleate	Evonik	0.50
A	Plantacare® 818 UP	Coco-Glucoside	BTC	11.00
A	dermosoft® Pen-tiol eco	Pentylene Glycol	Evonik	4.00
B	Amylomer™ CAT 531 AS+	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	2.00
B	Amylomer™ HA-NI	Sodium Hydroxypropyl Oxidized Starch Succinate	Gräfe Chemie	1.50
C	Citric Acid	Citric Acid	Carl Roth	q. s.

- Processing
1. Mix ingredients of phase A in given order until completely dissolved.

2. Add ingredients of phase B.

3. Adjust pH with phase C.

4. Fill into pump foamer.
- appearance: slightly hazy colorless liquid

• pH-value: 5.2 – 5.4

• stability: proven (3 months at room temperature, 4 °C and 40 °C)

• microbiological challenge test: passed

Harmonizing **Eilbek** Hair & Skin Tonic

Enhances hair care and smooths the hair surface from root to tip. Improves manageability without weighing the hair down.

Hair and skin tonic – regenerating and energizing 26-001-R4-05A				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	38.25
A	Glycerin (99.5%)	Glycerin	Biesterfeld	5.00
A	D-Panthenol USP	Panthenol	BTC	0.50
A	GlySmart®	Glycolic Acid, Arginine, Aqua	Berg + Schmidt	4.00
A	Tego® Natural Betaine	Betaine	Evonik	1.00
A	Rona Care® Allantoin	Allantoin	Merck	0.10
B	Ethanol denat. (99.8%)	Ethanol	Carl Roth	50.00
B	PÖ White Wedding	Perfume	Frey + Lau	0.15
C	Amylomer™ Care Fusion	Hydroxypropyl Oxidized Starch PG Trimonium Chloride; Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	1.00
D	Citric Acid (20% sol)	Citric Acid	Carl Roth	q. s.

- Processing
1. Mix ingredients of phase A in given order until completely dissolved.

2. Mix ingredients of phase B.

3. Add phase A slowly to phase B under stirring.

4. Add phase C.

5. Adjust pH with ingredient of phase D if necessary.
- appearance: colorless clear liquid

• pH-value: 5.0 – 5.2

• stability: proven (3 months at room temperature, 4 °C and 40 °C)



Nourishing Uhlenhorst Conditioner

A cream conditioner that boosts conditioning performance and is easy to distribute.

Creamy rinse off conditioner KB-1762-0106				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	79.40
A	Glycerin 99%	Glycerin	All Organic Treasures	10.00
A	Sodium Benzoate	Sodium Benzoate	Tilge Robert E.M.	0.30
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.20
A	Hydroxethylcel-lulose	Hydroxethylcellulose	Carl Roth	1.00
A	Lanette® O	Cetearyl Alcohol	BTC	0.50
A	Emul Care	Cetearyl Glucoside	Dragonspice Naturwaren	1.50
A	Olivem 1000 MB	Cetearyl Olivat (and) Sorbitan Olivat	Dragonspice Naturwaren	2.00
B	Amylomer™ Care 25	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	5.00
C	Citric Acid	Citric Acid	Caesar & Loretz	0.10

Processing

- Mix ingredients of phase A in given order and heat up to 80 °C.
 - At 45 °C add phase B to phase A and homogenize.
 - Adjust pH with phase C.
- appearance: white emulsion
 - pH-value: 4.3 – 4.7
 - viscosity: ~10,000 mPa*s (Haake, 22 °C, RV4, 10rpm)
 - stability: proven (3 months at room temperature, 4 °C and 40 °C)
 - microbiological challenge test: passed

Soft Heimfeld Curl Defining Spray

Improves curl definition and manageability while balancing the hair structure of naturally curly hair without weighing it down.

Curl defining spray – conditioning and styling 26-001-R2-02-E				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	75.50
A	Luviscol® VA 64 W	VP/VA Copolymer	BTC	0.20
A	Luviquat® HM 552	Polyquaternium-16	BTC	0.80
B	Tagat® CH 40	PEG-40 Hydrogenated Castor Oil	Evonik	1.00
B	Ethanol denat. (99.8%)	Ethanol	Carl Roth	20.00
B	PÖ Tender Apple	Perfume	Frey + Lau	0.50
C	Amylomer™ Care Fusion	Hydroxypropyl Oxidized Starch PG Trimonium Chloride; Starch Hy-droxypropyl Trimonium Chloride	Gräfe Chemie	2.00
D	Citric Acid (20% sol)	Citric Acid	Carl Roth	0.14



Smooth Neustadt Hand Cream

Delivers strong moisturizing properties and increases the skin’s elasticity.

Hand cream SI/1017 powered by TER Ingredients				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Deionized water	Aqua		q. s.
A	Glycerin 99%	Glycerin	TER Ingredients	3.00
A	Xanthan Gum	Xanthan Gum	TER Ingredients	0.30
A	CAREPHOS® N	Sodium Polyphosphate	ICL	0.20
C	Amylomer™ HA-NI	Sodium Hydroxypropyl Oxidized Starch Succinate	Gräfe Chemie	1.00
B	BeauSense E-SF	Polyglyceryl-3-Stearate (and) Sunflower Seed Oil Glycerides (and) Cetearyl Alcohol	Roelmi	4.00
B	Organic Apricot Oil	Prunus Armeniaca (Apricot) Kernel Oil	Natural Basics	5.00
B	Lanette O	Cetearyl Alcohol	BTC	2.00
B	Lanette 18	Stearyl Alcohol	BTC	2.00
B	Organic MCT Oil	Caprylic/Capric Triglyceride	Naturel Basics	3.00
B	Cetiol® OE	Dicaprylyl Ether	BTC	3.00
C	HIDAL S-6P	1,2-Hexanediol	Daedal	1.00
C	HIDAL S-280 MB	Glyceryl caprylate	Daedal	0.30
C	DL-α-Tocopherol 96%	Tocopherol	TER Ingredients	0.20
C	Apricot (Org) Phytapure Extract 100Ap16 1:5	Aqua (and) Prunus Armeniaca Fruit Extract (and) Citric Acid (and) Sodium Benzoate (and) Potassium Sorbate	Blue Sky Botanics	1.00
D	Citric Acid	Citric Acid	TER Ingredients	q. s.

Processing

- Mix the components of phase A and heat up to 80 °C.
 - Mix the components of phase B and heat up to 80 °C.
 - Add phase B to phase A and homogenize for 5 minutes.
 - Cool down to 35 °C and add phase C.
 - Set pH-value with phase D.
- appearance: white cream
 - pH-value: 5.3 – 5.7
 - viscosity: ~8,500 mPa*s (Brookfield, RV04, 20 °C, 20 rpm)
 - stability: stable for 3 months at 4 °C, 20 °C, 40 °C and 45 °C

Protective Gut Moor Hand Cream

The light, quickly absorbed formula protects the skin with a protective film and leaves it feeling pleasant and non-greasy.

Hand cream – silicone and PEG free 25-005-08-05				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	71.15
A	Glycerin (99.5%)	Glycerin	Biesterfeld	5.00
A	Potassium Sorbate	Potassium Sorbate	Tilge Robert E.M.	0.15
A	Xanthan FNCS-PC	Xanthan Gum	Jungbunzlauer	0.30
B	BeauSense® E-SF	Polyglyceryl-3-Stearate (and) Sunflower Seed Oil Glycerides (and) Cetearyl Alcohol	Roelmi	4.00
B	Lanette® O	Cetearyl Alcohol	BTC	2.00
B	Lanette® 16	Stearyl Alcohol	BTC	2.00
B	Apricot Oil nat. bio	Prunus Armeniaca (Apricot) Kernel Oil	Camassia eco	4.00
B	BergaBest® MCT Oil 60/40	Caprylic/Capric Triglyceride	Berg + Schmidt	3.00
B	Cetiol® OE	Dicaprylyl Ether	BTC	3.00
B	dermofeel® Toco 70 non GMO	Tocopherol, Helianthus Annuus (Sunflower) Seed oil	Evonik	0.20
B	dermosoft® GMCY MB	Glyceryl Caprylate	Evonik	0.20
B	Hidal® S-6P	1,2 Hexandiol	Daedal	1.00
C	Amylomer™ CAT 531 AS+	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	2.00
C	Amylomer™ HA-NI	Sodium Hydroxypropyl Oxidized Starch Succinate	Gräfe Chemie	1.50
C	PÖ Daydream Believer	Perfume	Frey + Lau	0.50
D	Citric Acid	Citric Acid	Carl Roth	q. s.

- Processing
1. Mix the components of phase A and heat up to 80 °C.

2. Mix the components of phase B and heat up to 80 °C.

3. Add phase B to phase A and homogenize for 5 minutes.

4. Cool down to 35 °C and add ingredients of phase C.

5. Set pH-value with phase D.
- appearance: white cream

• pH-value: 5.2 – 5.4

• viscosity: ~12,000 mPa*s (Lamy RV, Spindel 6, 10rpm, 20 °C)

• stability: proven (3 months at room temperature, 4 °C and 40 °C)

• microbiological challenge test: passed

Sensitive Eppendorf Body Lotion

A white body lotion that spreads easily, absorbs quickly and creates a light, nourished feeling on the skin.

Body lotion – silicone and PEG free 1762–0040-1				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	70.40
A	Verstatil® SL non GMO	Sodium Levulinate (and) Potassium Sorbate	Evonik	2.00
A	Glycerin 99.5%	Glycerin	Fauth + CO.	4.00
A	Lanette® O	Cetearyl Alcohol	BTC	1.00
A	Olivem® 1000 MB	Cetearyl Olivatate (and) Sorbitan Olivatate	Dragonspice Naturwaren	4.00
A	Neutral Oil	Caprylic/Capric Triglyceride	Nöring Naturprodukte	7.00
A	Sheabutter	Butyrospermum Parkii (Shea) Butter	Dragonspice Naturwaren	2.00
A	Dermosoft® GMCY MB	Glyceryl Caprylate	Evonik	0.20
A	Sunflower Oil	Helianthus Annuus Seed Oil	All Organic Treasures	7.50
A	Xanthan FNCS-PC	Xanthan Gum	Jungbunzlauer	0.30
B	Dermofeel® Toco 70	Helianthus Annuus Seed Oil (and) Tocopherol	Evonik	0.50
B	Amylomer™ CAT 531 AS+	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	1.00
C	Citric Acid	Citric Acid	Caesar & Loretz	0.10

Soothing Wandsbek After Shave

Supports post-shave skincare by leaving a pleasantly dry, non-sticky film on the skin.

After shave – a refreshing treatment to soothe the skin after shaving 26-001-R3-7				
PHASE	TRADE NAME	INCI NAME	SUPPLIER	% W/W
A	Water	Aqua	-	31.50
A	Glycerin (99.5%)	Glycerin	Biesterfeld	5.00
B	Ethanol denat. (99.8%)	Ethanol	Carl Roth	60.00
B	PÖ Matrix	Perfume	Frey + Lau	0.50
C	Amylomer™ CAT 531 AS+	Starch Hydroxypropyl Trimonium Chloride	Gräfe Chemie	3.00
D	Citric Acid	Citric Acid	Carl Roth	q. s.

- Processing
1. Mix ingredients of phase A in given order and heat up to 80 °C.

2. At 45 °C add phase B to phase A and homogenize.

3. Adjust pH with phase C.
- appearance: white emulsion

• pH-value: 4.8 – 5.4

• viscosity: ~9,000 mPa*s (Haake, 22 °C, RV4, 10rpm)

• stability: proven (3 months at room temperature, 4 °C and 40 °C)

• microbiological challenge test: passed

- Processing
1. Mix ingredients of phase A in given order until completely dissolved.

2. Mix ingredients of phase B.

3. Slowly add phase A to B under stirring.

4. Add phase C.

5. Adjust pH with phase D if needed.
- appearance: colorless clear liquid

• pH-value: 5.0 – 6.0

• stability: proven (3 months at room temperature, 4 °C and 40 °C)





effectableyours

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Your added value

- Development of market-relevant hair and skin care formulations
- Performance testing of hair care products in our in-house hair laboratory
- Documented proof of performance and efficacy
- Sensory evaluation and professional testing by master hairdressers
- Validated biophysical testing methods, including wet and dry combability, synchronous washing station, climate chamber and curl retention

Your benefit

- Well-founded proof of efficacy instead of marketing promises
- Faster time to market through validated data
- Secure and credible claims
- Direct connection between raw material expertise and application technology

Yours, because ...

together we will find solutions tailored to your needs – because long-term success is only possible through cooperation!

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«effectableyours» is a service and competence platform for testing, developing and reliably proving the effectiveness of hair care products

We support interesting customer projects – as the basis for convincing and reliable claims. Testing of your formulations in our in-house lab:

- synchronised washing station – comparing the sensory properties of hair care products → sensory behavior on the hair
- climate chamber – hair drying and curl retention
- proof of efficacy – dry combing force and wet combing force



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Sensory evaluation of the Amylomer™ product range

The sensory profile was evaluated by experienced master hairdressers using a synchronized wash station and pre-damaged standard European natural hair tresses (bleached).

Improvement vs. control

The table shows the improvement in the listed parameters for the basic shampoo containing Amylomer™ products compared to the control (basic shampoo without conditioning agent). The results are expressed as improvement factors based on the sensory evaluation rating scale.*

	Shampoo improvements			Hair improvements				
Sensory evaluation control *rating scale: 1 = very bad 2 = bad 3 = moderate 4 = good 5 = very good								
	foam volume	foam density	smoothness of the liquid	smoothness during treatment	smoothness during rinsing	tangled hair after rinsing	comba-bility	smoothness after treatment
	4	3	4	3	1	1	1	1
★ Care Fusion	-	+2	-	+2	+2.5	+4	+4	+3
CAT 531	+1	+1.5	-	+1	+2	+2	+3	+2
CAT 531 AS+	+1	+2	+1	+1	+3	+3	+3	+2.5
Care 25	+0.5	+1	-	+1	+1	+0.5	+1	+1
HA-CAT 75	+1	+1	-	+1	+2	+4	+4	+3
H-Care05	-	+1	-	-	+1	+0.5	+1	+1
HA-NI	-	+1	+1	+1	-	-	-	-

Improvement vs. control

- no improv.

+0.5 very low

+1 low

+1.5 low-medium

+2 medium

+2.5 good

+3 very good

+4 excellent



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Combing force measurements

The cleaned hair tresses ensure comparable testing conditions. After drying for 24 hours in a climate chamber, combing force measurements on wet hair tresses are performed. Each test substance is applied to individual hair tresses five times, including the application, distribution, rinsing and foaming phases.

The following graph shows the results of combing force measurements performed on commercially available, pre-damaged natural hair tresses. The basic shampoo formulation containing different Amylomer™ products was compared with the control formulation without a conditioning agent.

Product	Combing force results in %
control	39%
Amylomer™ Care Fusion	-87%
Amylomer™ CAT 531	-79%
Amylomer™ CAT 531 AS+	-80%
Amylomer™ Care 25	-33%
Amylomer™ HA-CAT 75	-86%
Amylomer™ H-Care05	-36%
Amylomer™ HA-NI	-1%

Simply let us know

**Looking for the right Amylomer™
product for your formulation?**

**Want to test your product's efficacy and
scientifically substantiate your claims?**

**We would be
delighted to
provide you with
documentation
and/or samples.**



GRÄFECHEMIE

ADDITIVES FROM PLANT-BASED RAW MATERIALS

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