

Product Information

# symbio<sup>®</sup>quat

### Product features

···}	Conditioner for hair & skin
···•.	Symbiotic effect of two active species
···•	Based on potato starch
···•	High performance and reduced build-up



### symbio<sup>®</sup>quat

#### Liquid starch based hair conditioner

**Modified starches** build highly effective films on skin and hair Intensive development with chemically modified starches showed, that different modifications of Amylose generate distinct effects in hair care formulations.

As a conclusion of hundreds of performance tests a raw material that unifies the most important properties of a good conditioner was developed. symbio®quat stands for:

- Easy handling in laboratory and in production
- Versatile film building performances •
- Optimum performance according to condition of skin & hair
- ٠ Natural raw material with chemical modification to achieve best performance.

In performance tests with many hair care formulations it became obvious, that symbio®quat with its patented combination of two - very different molecular species exhibits a much better performance than individual conditioning agents:

- one highly quaternised amylose with a strong affinity to skin & hair, small enough to fit into irregularities on the surface of hair
- one larger Amylose species to cover the remaining free spaces but with lower quaternisation grade, making it easily removable

symbio®quat delivers a unique performance to hair and skin. In contrast to many standard conditioning agents it shows a perfect compromise between a strong cosmetic function but only little interference with the

	<b>symbio</b> ®quat	Polyquaternium - 10	Guar hydroxypropyl- trimonium chloride	
general feel during washing	smooth, soft, creamy foam, pleasant touch with nice slip	soft, nice slip, less creamy	smooth, soft, creamy foam, pleasant touch, nice slip	
combing of wet hair	very good	very good	fair	
styling	good manageability	hair tends to be soft, low volume	good manageability	
effect after several applications	rich volume, structured, manageable hair	soft hair, styling has limited lastingness	poor conditioning effect - but good volume	
substantivity	easy to remove with clarifying shampoo	build up – effect, hard to remove	low – easy to remove	
summary	- suites all hair types -good styling support	-good conditioner for porous hair -build-up, poor styling support	-ideal for the aesthetic approach - limited conditioning results	

The combination of actives makes symbio®quat very versatile

Dosage:
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Shampoos for fine hair	0,5 – 1,5%	(0,1-0,3% active substance)
Shampoos for porous hair	1,0 – 2.5%	(0,2-0,5% active substance
Shower gel	1,5 – 2.5%	(0,3-0,5% active substance

with a neutral (not conditioned) shampoo.

substance) The film formed by symbio®quat can easily be removed from the hair

intelligence behind beauty

substance)

### symbio®quat

### Reduction of combing resistance

Due to the patented mixture of different conditioning agents **symbio**<sup>®</sup>**quat** exhibits an excellent reduction of combing forces. Small, molecular species with a high degree of quaternisation attach to the hair's irregularities and protect the hair against further damage at these sites. A second, larger Amylose species with a lower degree of quaternisation forms a film to cover the hair's surface making it smooth and reducing the combing resistance. The level of reduction of combing forces is comparable to industry standards like Polyquaternium-10 or Polyquaternium-7 and it easily surpasses the combing force reduction of e.g. Guar hydroxypropyl trimoniumchloride.

A very good reduction of combing resistance is achieved with **symbio**®quat



Fig.1: Reduction of combing forces with Guar Hydroxypropyl Trimonium Chloride (light grey), Polyquaternium-10 (dark grey) and **symbio®quat**. (black line) in the same shampoo base. The best result is achieved with **symbio®quat**.

The smoothing effect of **symbio**<sup>®</sup>quat is not only delivered to the hair, but is also perceived on the skin. Tests in shower gels, after shave formulations and skin tonics show an improved skin feel during and – particularly – after application of the product.



### symbio®quat

### Smoothing of the hair cuticle

The film formed by **symbio**°quat protects and smoothens the surface of hair. Washing, combing, drying of the hair and further treatments deteriorate the fine structure of the hair's cuticle. The normal reaction to the treatment with warm water and surfactants when washing hair is shown in Fig. 2. The scales of the cuticle stick out and eventually get detached. The result is damaged, porous hair. When treated in the same way, but with **symbio**°quat in the shampoo, the structure of the hair remains healthy and smooth.



The improvement of the hair's fine structure with **symbio**®quat helps to protect the cuticle

Fig.2: Hair treated with shampoo without conditioner shows a rough and damaged surface (left). When treated with the same shampoo containing quaternised starch the resulting hair structure is smooth and healthy (right).

The protection of the hair becomes more important, when the hair is regularly treated with chemicals (e.g. bleach or colorants) or harsh physical methods (e.g. perms). In these cases a high performance hair conditioner is needed to cover damaged sites on the hair's cuticle and to prevent further deterioration of the structure. **symbio**<sup>®</sup>**quat** can be used in common conditioning shampoos as well as in repair concepts.



### symbio®quat

### No Build-Up-Effect

An undesired side-effect of a good conditioning performance is the buildup of film-forming compounds. This is typically seen with Polyquaternium-10 or other conditioning agents, which after several washing cycles tend to form a multilayer film. The result of this behaviour is a decrease in manageability of the hair. The hair gets dull and heavy, styling becomes almost impossible. The effect can be demonstrated by measurement of the combing forces after several washing cycles (to provoke a build-up) and a clarifying wash, to remove the film. If the removal of the film is hardly possible as it is the case with Polyquaternium-10, the build-up tendency is very strong as shown in Fig.3. Ideally the conditioning agent should form a smoothing film after a few washing cycles, but remain easily removable as shown in the results with **symbio®quat** in Fig. 3.

### A build-up effect often correlated to conditioners is not found when using **symbio**®quat



### Repeated conditioning and clarifying

Fig.3: Combing force reduction after repeated conditioning and clarifying. The results show that **symbio**<sup>®</sup>**quat** is as effective in terms of conditioning after 5 washing cycles. But the removability of **symbio**<sup>®</sup>**quat** is significantly easier as seen by the combing resistance after a clarifying shampoo. Ideally the measurement would show the initial value (0%) after the clarifying shampoo. Polyquaternium-10, according to its known build-up tendency, remains on the hair to a greater extend. This result is also supported by Rubine dye – tests.



### symbio<sup>®</sup>quat

### **Overall Performance**

In a blind application study, professional hair dressers evaluated the performance of two shampoos in a half side comparison. One shampoo contained Polyquaternium-10, the other contained the same active concentration of symbio®quat. The study parameters were focused on combability but also on the sensorial performance (foaming or feel on the hair) and secondary cosmetic functions like volume.

The study was performed with a panel of ten individuals with different hair types. Two consecutive applications of both products were performed in the half side test with three hair care professionals. The evaluation was done with a questionnaire according to the German school grade system, with 1 being the best and 6 being the worst result.

Hair care professionals verifiv the versatility of symbio®quat in half side tests



Rating: 1= excellent, 2= good, 3= fairly good, 4= fair, 5= poor, 6= not acceptable

Fig. 4: Half side test with two shampoos, one containing symbio®quat, the other containing Polyquaternium-10 in the same shampoo base. The evaluation was done according to the German school grade system, showing better results for symbio®quat in each of the tested categories.



### symbio®quat

### Skin Care

Skin Care formulations also benefit from **symbio**<sup>®</sup>quat The refinement of skin care products is also in the scope of **symbio**<sup>®</sup>**quat**. The skin feel is significantly improved during the application. In shower gels it helps to produce and stabilize rich and creamy foam. The feeling after the application on wet and dry skin is perceived as rich and nurturing. The film left on the skin after application is still perceived on the dry skin after application with a sensation of protected and smooth skin. In a test, conducted with a test panel of 17 volunteers, **symbio**<sup>®</sup>**quat** resulted to significantly improve the tested shower gel formulation in respect to washing performance, mildness, skin feel and overall performance.



Shower Gel evaluation with and without symbio<sup>®</sup>quat

Fig. 5: Performance test of a shower gel with and without **symbio**<sup>®</sup>quat. 17 Test persons tested the blinded products on the skin of their inner forearm. The evaluation was done according to a questionnaire. The results show a strong preference of the **symbio**<sup>®</sup>quat containing formula over the placebo.

Also other skin care products can be enhanced with **symbio®quat**. Tests in after shave formulations, skin cleansing products or tonics showed a similar result. The skin feels smoother and a nurturing sensation is delivered.



### symbio®quat

### Application

The application of liquid **symbio**®quat is easy and convenient.

The application of symbio®quat is very simple. The liquid raw material can be added to the aqueous phase at any step of the production procedure. It can be mixed easily with other ingredients and shows few limits in terms of compatibility. If cloudiness is observed, it may be due to interactions with ethersulfate. Generally speaking, the compatibility is better with non-ionic surfactants as it is the case for all cationic conditioning agents. If incompatibilities occur (e.g. haziness) a reduction of anionic surfactants like SLS or ethersulfates will improve the formulation. The compatibility with all tested non-ionic surfactants is very good. Although tested up to 0,4 % active substance in 10% ethersulfate formulations without problems, the formulation may become cloudy at concentrations between 0,5% and 0,6% symbio®quat in ethersulfate. In this case either the reduction of symbio<sup>®</sup> quat or the amount of ethersulfate may help to yield a clear product. If the amount of ethersulfate is reduced, the concentration of co-surfactants (e.g. sulfosuccinates, sarcosinates or acylglutamates) in the formulation may be increased. The compatibility with ethanol has been tested up to concentrations of 50% alcohol. There were no signs of haziness at this concentration.

Characteristics of <b>symbio</b> <sup>®</sup> quat			
Appearance	Clear colourless liquid		
INCI	Aqua, Hydroxypropyl Oxidized Starch PG-Trimonium Chloride, Starch Hydroxypropyltrimonium Chloride, Sodium Lactate, Sodium Chloride, Urea, Lactic Acid, Glycerin, Sodium Levulinic acid, p-Anisic acid		
Preservation	none		
Recommended dosage	1,0 – 3,0 %		



### symbio®quat

### **Rinse off Hair Mask**

84-08B-308

### Claims: Ideal Conditioner for normal to slightly porous hair Long term conditioning effect Smooth, well conditioned feel Gives a nice slip, covers roughness of porous hair

Phase	Ingredient	INCI	Supplier	%
Α	Deionised Water	Aqua		76.90
	Jaguar HP 105	Hydroxypropyl Guar	Rhodia	0.35
A1	dermofeel® PA-3	Sodium Phytate, Aqua	Dr. Straetmans	0.10
	dermosoft® 1388	Glycerin, Aqua, Sodium Levulinate, Sodium Anisate	Dr. Straetmans	3.00
В	Incroquat Behenyl TMS	Cetyl Alcohol, Behentrimonium Methosulfate	Croda	7.00
	DC 200 (100 cs)	Dimethicone	Dow Corning	0.50
	<b>dermo</b> feel <sup>®</sup> BGC	Butylene Glycol Dicaprylate/Dicaprate	Dr. Straetmans	6.50
D	Amylomer <sup>™</sup> EMU PF	Polyquaternium-75	Dr. Straetmans	3.75
	<b>symbio</b> ®quat	Hydroxypropyl Oxidized Starch PG- Trimonium Chloride, Starch Hydroxypropyltrimonium Chloride	Dr. Straetmans	1.60
E	Parf. Leafs in the trees 419475 (SCCNFP sensitizer free up to 10% use level)	Parfum	Symrise	0.30
	Citric Acid (sol 20%)	Citric Acid	Merck	q. s.
				100.00

### Manufacturing Procedure:

- 1. Dissolve Jaguar HP 105 under stirring while heating to 75°C.
- 2. Add components of phase A1.
- 3. Heat phase B up to 75°C. Add phase B to phase A under stirring.
- 4. Homogenize for 1-2 min. using an Ultra Turrax.
- 5. Cool down to 40°C. Add Amylomer<sup>™</sup> and perfume under stirring.
- 6. Adjust pH value to 5,0 5,4.

#### **Specification Values:**

Appearance: white emulsion. pH: 4.5 – 5.0. Viscosity (Brookfield: Helipath TF; Speed 10): Approx. 20.000 mPa's. Centrifuge (15 min., 4.000 rpm): No separation.

#### Stability:

Stable for more than 3 months at 20°C, 40°C, and 4°C.

Microbiological Stability: Proven.

The information contained herein is meant to demonstrate how our products can be used. The given data are suggestions without any guarantee aimed to support customers' development. As production conditions at our customers' facilities are beyond our control we refuse to accept any liability involved in the use of our products. Please observe possible third party patent rights. Dr. Straetmans Chemische Produkte GmbH, Merkurring 90, D-22143 Hamburg, Germany, T +49 (0)40-66 93 56-0, F +49 (0)40-66 93 56-310, info@dr-straetmans.de http://www.dr-straetmans.de



### symbio®quat

### After Shave men care

87-3-01A-707

### Claims: Conditioning Non tacky smooth and silky skin feel Soft during application

Phase	Ingredient	INCI	Supplier	%
А	Ethanol (86%)	Alcohol denat.	Merck	60.00
	Frag. 49312174 Aqua Power	Parfum	Drom	0.50
	Glycerol (86%)	Glycerin	Merck	5.00
В	<b>symbio</b> ®quat	Hydroxypropyl Oxidizided Starch PG-Trimonium Chloride, Starch Hydroxypropyltrimonium Chloride	Dr. Straetmans	2.00
	Deionised Water	Aqua		32.50
				100.00

### **Manufacturing Procedure:**

- 1. Premix A and B separately.
- 2. Add B to A.

### **Specification Values:**

Appearance: Clear, colourless solution. pH-value: 5.0 – 6.0.

#### Stability:

More than 3 months stable at 40°C, room temperature, and 4°C.

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### symbio<sup>®</sup>quat

# Shampoo for Sensitive Hair and Skin

#### Claims: Well balanced conditioning for hair and scalp Excellent conditioning for all hair types

Phase	Ingredient	INCI	Supplier	%
Α	Tap Water	Aqua		57.50
	<b>dermo</b> feel <sup>®</sup> PA-3	Sodium Phytate, Aqua	Dr. Straetmans	0.10
	Ajidew ZN-100	Zinc PCA	Ajinomoto	0.20
	Glycerol (85%)	Glycerin	Merck	3.00
	D-Panthenol	Panthenol	BASF	1.50
	Texapon N 70	Sodium Laureth Sulfate	Cognis	14.00
В	Rewoteric AM C	Sodium Cocoamphoacetate	Evonik	6.00
	Amisoft CS-22 (25% AS)	Sodium Cocoyl Glutamate, Disodium Cocoyl Glutamate	Ajinomoto	4.00
	dermosoft <sup>®</sup> LP	Caprylyl Glycol, Glycerin, Glyceryl Caprylate, Phenylpropanol	Dr. Straetmans	1.00
	dermosoft® 688	p-Anisic Acid	Dr. Straetmans	0.20
	dermosoft® DGMC	Polyglyceryl-2 Caprate	Dr. Straetmans	1.00
	Antil 127	PEG-120 Methyl Glucose Dioleate	Evonik	0.60
	RonaCare Bisabolol nat.	Bisabolol	Merck	0.10
	Perf. Baby Cotton 449264	Parfum	Symrise	0.50
С	Euperlan PK 1200	Coco-Glucoside, Glycol Distearate, Glycerin	Cognis	7.50
	<b>symbio</b> ®quat	Hydroxypropyl Oxidized Starch PG-Trimonium Chloride, Starch Hydroxypropyltrimonium Chloride	Dr. Straetmans	2.80
	Sodium Chloride	Sodium Chloride		q. s.
	Citric Acid (sol.20%)	Citric Acid	Merck	q. s.
				100.00

#### Manufacturing Procedure:

- 1. Mix ingredients of phase A until completely dissolved.
- Premix phase B. Make sure that **dermosoft**<sup>®</sup> 688 is completely dissolved and add to phase A. 2.
- Add ingredients of Phase C and adjust viscosity with sodium chloride and pH with citric acid. 3.

#### **Specification Values:**

Appearance: white pearlescent viscous gel. pH: 5.2 - 5.4 Viscosity (Brookfield: LV 3; Speed 10): 3.000 - 6.000 mPa's.

Stability Stable for more than 3 months at 20°, 40°, 4°C.

Microbiological stability: Proven.

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### symbio<sup>®</sup>quat

# Mild Body Shower

#### Claims: refined and velvety skin feel Reduces skin irritation and roughness

Phase	Ingredient	INCI	Function	%
Α	Tap Water	Aqua		33.40
	dermofeel® PA-3	Sodium Phytate, Aqua	Dr. Straetmans	0.10
	dermosoft® LP	Caprylyl Glycol, Glyceryl Caprylate, Glycerin, Phenylpropanol, Aqua	Dr. Straetmans	1.00
	Glycerol	Glycerin	Merck	10.00
	Rewoteric AMC	Sodium Cocoamphoacetate	Evonik	20.00
	Amisoft CS-22 (sol. 25%)	Sodium Cocoyl Glutamate	Ajinomoto	5.00
	Protelan LS 9011	Sodium Lauroyl Sarcosinate	Zschimmer & Schwarz	8.00
	Lamesoft PO 65	Coco Glucoside, Glyceryl Oleate	Cognis	2.00
	Perf. 494118 Lotus Blanc	Parfum	Drom	0.50
В	Tap Water	Aqua		10.00
	Viscolam Mac 10	Acrylates Copoymer	Lamberti	7.50
С	Sodium Hydroxide (sol.10%)	Sodium Hydroxide	Merck	q. s.
D	<b>symbio</b> ®quat	Hydroxypropyl Oxidized Starch PG-Trimonium Chloride, Starch Hydroxypropyltrimonium Chloride	Dr. Straetmans	2.00
	Cosmospheres WTS-M	Lactose, Microcrystalline Cellulose, Tocopheryl Acetate, Helianthus Annuus	Pelletech Ltd.	1.00
				100.00

### Manufacturing Procedure:

- Dissolve ingredients of phase A in given order under stirring until a clear solution is obtained. 1.
- Make sure each ingredient is completely dissolved!
- 2. Add premix of phase B and adjust pH value to 6.5 – 7.0 with C if necessary.
- 5. Add components of phase D and stir gently until homogeneous.

#### **Specification Values:**

Appearance: clear, viscous gel with white beads. pH: 6.5 - 7.0. Viscosity (Brookfield: Helipath TF; Speed 10): > 5.000 mPas.

Stability: Stable for more than 3 months at 20°C, 40°C, and 4°C.

Microbiological stability: Proven.

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### symbio®quat

More formulations with our products are available for both, traditional and natural cosmetics concepts. Please contact us to receive your copy of our general Formulary and our Formulary NATURE Edition, respectively.

### Toxicology

**symbio**<sup>®</sup>quat is not irritating, not sensitizing. It does not contain genetically modified material, dioxine, phthalates, BSE-related material or CMR-material.

#### Packing units

**symbio®quat** is available in 25 kg canisters and 200 kg drums and in 1000 kg containers.

### Handling and storage

In closed original containers **symbio®quat** can be stored for at least 24 months. **symbio®quat** is preservative free.

For further information contact our Dr. Straetmans sales team: <u>sales@dr-straetmans.de</u> or your local representative.



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