



Care  
Creations™

# Conditioning Anywhere

Dehyquart® Guar: our versatile Guar Conditioner Polymer range

May 2017

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We create chemistry

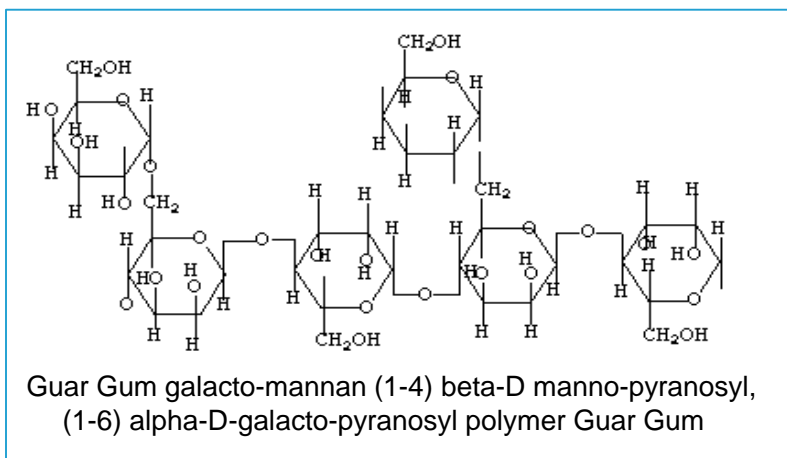
# Agenda

- 1 | Dehyquart<sup>®</sup> Guar Introduction
- 2 | Dehyquart<sup>®</sup> Guar N
- 3 | Dehyquart<sup>®</sup> Guar HP
- 4 | Dehyquart<sup>®</sup> Guar TC
- 5 | Overview & Summary

# Dehyquart<sup>®</sup> Guar

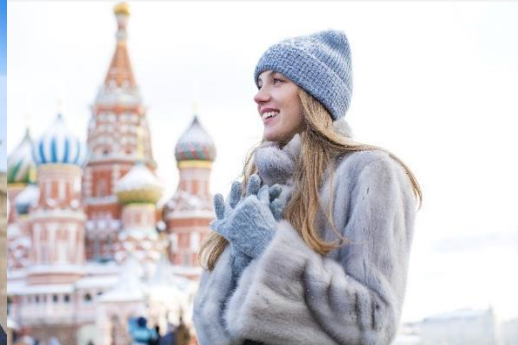
## Cationic Guar polymer range

Dehyquart<sup>®</sup> Guar are quaternized derivatives of Guar Gum



Guar Gum is a complex carbohydrate derived from the seed of specially grown bean plants.





# Conditioning Anywhere ...

With our versatile conditioner polymer range for hair care and body cleansing

## Dehyquart® Guar

### Fields of Application

- Shampoo
- Body wash products
- Conditioning and hair treatments
- Liquid Soaps
- Facial cleansers

# Dehyquart® Guar

## Our range of Guar Polymers

### Dehyquart® Guar N

“**Normal**” cationic guar quality

### Dehyquart® Guar HP

“**High Performance**” cationic guar quality

### Dehyquart® Guar TC

“**Transparent Clear**” cationic guar quality

- Quaternised guar flour
- INCI name: Guar Hydroxypropyltrimonium Chloride
- Dehyquart® Guar types are white to yellow fine powders with a characteristic intrinsic odour.
- Dehyquart® Guar types are conditioning polymers especially designed for rinse-off applications as shampoos, hair treatments, body wash products, liquid soaps or facial cleansers.
- Cosmos approved \*

# Dehyquart<sup>®</sup> Guar N

“Normal”  
Cationic Guar Polymer

# Dehyquart<sup>®</sup> Guar N

The standard („Normal“) cationic Guar Polymer



**Dehyquart<sup>®</sup> Guar N - General use conditioning agent for all kind of opaque & pearlized rinse off formulations.**

- INCI: Guar Hydroxypropyltrimonium Chloride
- Appearance: Yellowish fine powder
- Active Matter: Approx 90 %
- Dosage: 0.1 – 0.5 %

- Good conditioning properties
- Improved wet and dry combability
- Positive influence on anti hair-breakage
- Soft skin feel
- Quality improvement of foam
- Cosmos approved \*

# Dehyquart® Guar N

## The Good Hair Day Shampoo „Paris“

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A nice time in  
Paris cannot start  
without our  
shampoo  
“Good Hair Day”

The Shampoo Good Hair Day “Paris” contains **Dehyquart® Guar N** combined with the care emollient **Cetiol® LDO** for a nice conditioning effect. The pearlizer concentrate **Euperlan® PK 710** gives a luxurious, radiant appearance to the product.



# Dehyquart® Guar N

## The Good Hair Day Shampoo „Paris“



### Manufacturing Process

Phase A : To water add Dehyquart® Guar N and a small amount of Citric acid under stirring and allow to swell for 5 minutes.

Add ingredients of phase B in given order, stirring after each addition until completely homogeneous.

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	74.00	
	<b>Dehyquart® Guar N</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% solution)	Citric Acid	0.05	pH Adjustment
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.40	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	Cetiol® LDO	Dicaprylyl Ether, Lauryl Alcohol	0.70	Conditioning agent
	Euperlan® PK 710 Benz	Glycol Distearate, Sodium Laureth Sulfate, Cocamide MEA	3.00	Pearlizer
	Perfume	Parfum	q.s.	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
	Citric Acid (50% solution)	Citric Acid	0.60	pH Adjustment
	Sodium Chloride	Sodium Chloride	1.25	Rheology modifier

pH-value (as is): ~4.9

Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~10,000 mPa•s

Density 20°C ~1.034 g/cm<sup>3</sup>

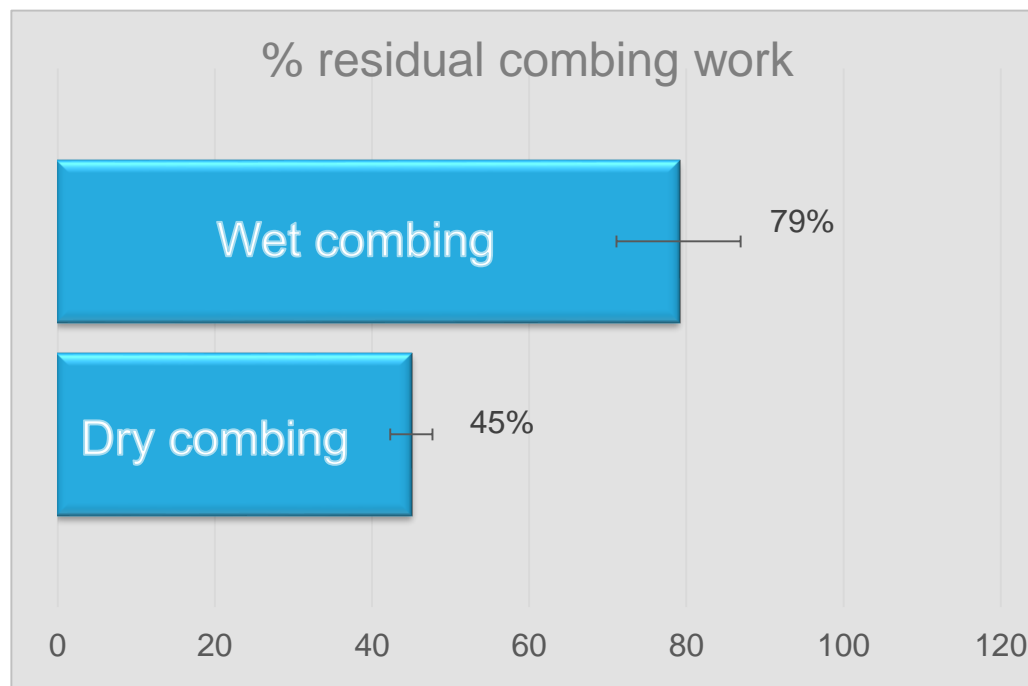
HB-DE-09-058-50

# Dehyquart® Guar N

## Wet and Dry Combability



Caucasian hair strands



Shampoo "Paris" HB-DE-09-058-50  
with 0.2 % Dehyquart® Guar N

# Dehyquart® Guar N

The Healthy Hair Conditioning Shampoo „Moscow“

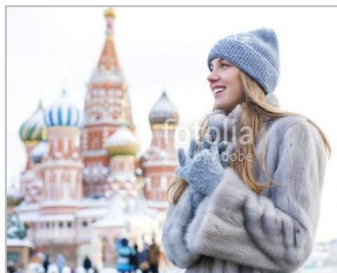


With our  
Healthy Hair  
Conditioning  
Shampoo your  
hair will look great  
in every condition

The Healthy Hair Conditioning Shampoo “Moscow” contains **Dehyquart® Guar N** associated with the care emollient **Cetiol® LDO** and the micronized wax dispersion **Lamesoft® Care**, for an effective hair protection effect and a luxurious, marbled appearance. The wheat microprotein **Gludain® WLM** with its deep penetration capacity contributes to a repairing effect.

# Dehyquart® Guar N

## The Healthy Hair Conditioning Shampoo „Moscow“



### Manufacturing Process

Mix ingredients of phase A in given order under stirring for approximately 10 min. Add ingredients of phase B in given order, stirring after each addition until homogeneous. Adjust pH by adding phase C. Adjust viscosity by adding phase D. The amount of phase C and phase D is approximately.

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	68.30	
	<b>Dehyquart® Guar N</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% sol.)	Citric Acid	0.10	Neutralizing agent
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.00	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	Plantacare® 818 UP	Coco-Glucoside	5.00	Surfactant
	<b>Lamesoft® CARE</b>	<b>PEG-4 Distearyl Ether, Sodium Laureth Sulfate, Distearyl Ether, Dicaprylyl Ether</b>	<b>3.00</b>	<b>Conditioning agent</b>
	Gludain® WLM Benz	Hydrolyzed Wheat Protein	0.50	Conditioning agent
	Cetiol® LDO	Dicaprylyl Ether, Lauryl Alcohol	0.50	Conditioning agent
	Dehydol® LS 2 DEO N	Laureth-2	1.00	Stabilizer
	Perfume Cotton Touch (Symrise)	Parfum	0.30	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
C	Citric Acid (50% sol.)	Citric Acid	0.90	pH Adjustment
D	Sodium Chloride	Sodium Chloride	0.40	Rheology modifier

pH-value (23°C): 4.8

Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~8.000 mPa\*s

Density 20°C ~1.030 g/ml

HB-DE-15-035-1

Care  
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# Dehyquart® Guar N

## The Oil protecting Shower Cream „London“

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Your skin will be  
ready for a busy  
day in the city  
with our  
Oil protecting  
Shower Cream  
“London”

In our Oil protecting Shower Cream “London”, **Dehyquart® Guar N** imparts a nice skin conditioning effect. It is combined with **Lamesoft® OD**, an oil microemulsion for an every day luxury shower experience. The pearlizer concentrate **Euperlan® PK 710** gives a brilliant appearance to the product whilst the right viscosity is achieved thanks to the “turbo” thickener **Arlypon® TT**.

# Dehyquart® Guar N

## The Oil protecting Shower Cream „London“



### Manufacturing Process

Mix components of phase A in given order under stirring and allow to swell for approximately 10 min. Add ingredients of phase B in given order, stirring after each addition until completely homogeneous. Adjust pH by adding phase C under stirring. Adjust viscosity by adding phase D under stirring. The amount of phase D is approximately.

Ingredients	INCI	Weight %	Function	
A	Water, demin.	Aqua	64.15	
	<b>Dehyquart® Guar N</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% sol.)	Citric Acid	0.10	Neutralizing agent
B	Dehyton® PK 45	Cocamidopropyl Betaine	7.50	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	17.00	Surfactant
	<b>Lamesoft® OD</b>	<b>Coco-Caprylate, Lauryl Glucoside, Glycerin, Polyglyceryl-2 Dipolyhydroxystearate, Polyglyceryl-3 Diisostearate</b>	<b>4.00</b>	<b>Lipid layer enhancer</b>
	Glycerin	Glycerin	1.00	Stabilizer
	Euperlan® PK 710 Benz	Glycol Distearate, Sodium Laureth Sulfate, Cocamide MEA	3.00	Pearlizer
	Sodium Chloride	Sodium Chloride	0.50	Stabilizer
	Perfume	Parfum	0.30	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
C	Citric Acid (50% sol.)	Citric Acid	q.s.	pH Adjustment
D	Arlypon® TT	PEG/PPG-120/10 Trimethylolpropane Trioleate, Laureth-2	1.75	Rheology modifier

pH-value (23°C): 4.7

Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~5.700 mPa•s

Density 20°C ~1.034 g/ml

HB-DE-12-053-19

# Dehyquart<sup>®</sup> Guar HP

“High Performance”  
Cationic Guar Polymer

# Dehyquart® Guar HP

The „High Performance” Cationic Guar Polymer

**Dehyquart® Guar HP – Superior conditioning agent for an extra effect in all kind of opaque & pearlized rinse off formulations.**

- INCI: Guar Hydroxypropyltrimonium Chloride
- Appearance: Yellowish fine powder
- Active Matter: Approx. 90 %
- Dosage: 0.1 – 0.5 %

- High conditioning performance. Recommended when an extra effect is needed
- Superior wet and dry combability
- Positive influence on anti hair-breakage
- Soft skin feel
- Quality improvement of foam
- Cosmos approved \*



# Dehyquart® Guar HP

## Conditioning effect in Plantasil® 4V formulation

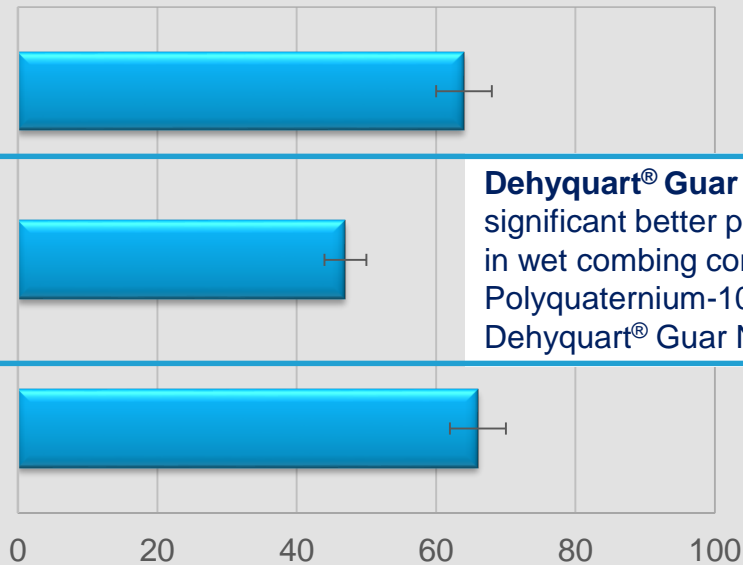
Combing work in % (medium bleached wet hair)

**Base Formula:**  
12% WAS, SLES:CAPB 10:2  
2% Plantasil 4 V  
0.2% Polymer  
3% Euperlan PK 710

Polyquaternium-10, 0.2%

Dehyquart Guar HP, 0.2%

Dehyquart Guar N, 0.2%



Dehyquart® Guar HP shows significant better performance in wet combing compared to Polyquaternium-10 & Dehyquart® Guar N



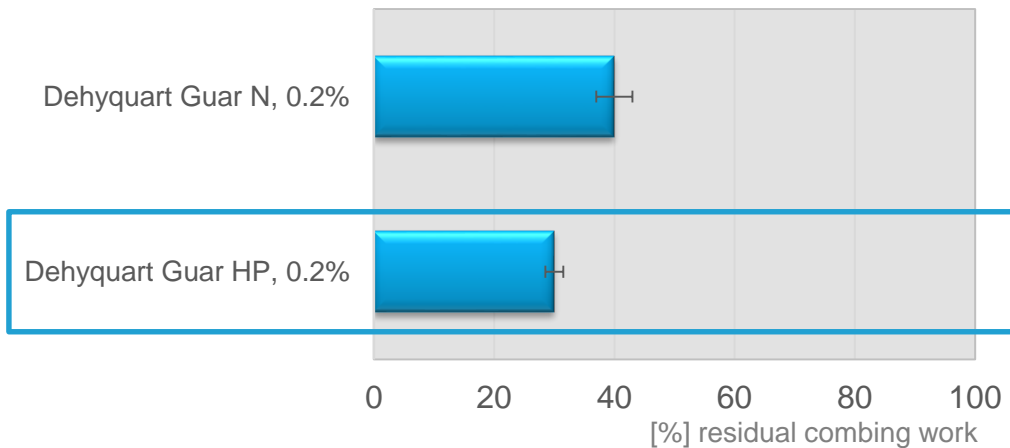
[%] residual **wet** combing work on medium bleached hair

**Dehyquart® Guar HP is a high efficacy conditioning polymer, recommended when extra benefits are needed in hair care.**

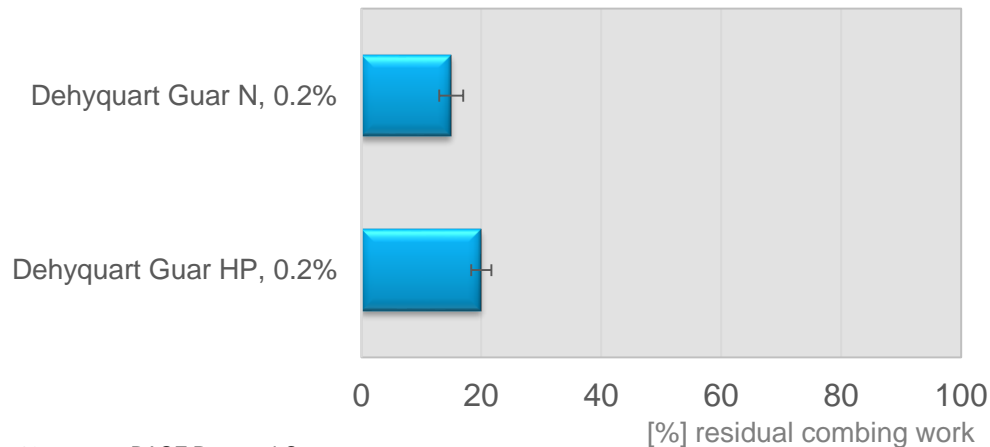
# Dehyquart® Guar HP

## Conditioning effect in silicone-based formulations

### Wet Combing



### Dry Combing



Formulation HB-DE-	16-017-07	16-017-05
Texapon® N 70	18.60	18.60
Dehyton® PK 45	5.40	5.40
Lanette® O	2.00	2.00
Dehyquart® Guar HP	0.20	-
Dehyquart® Guar N	-	0.20
Glycerin	2.00	2.00
Pearlizer	3.00	3.00
Dimethicone, Laureth-4, Laureth-23 *	2.00	2.00
Arlypon® TT	1.00	1.49
Pefume, preservative	q.s.	q.s.
Aqua	to 100	to 100

\* Xiameter MEM 1664 Emulsion (Dow Corning)

**Dehyquart® Guar HP shows significantly better efficacy in wet combability also in silicone-based shampoos**

# Dehyquart® Guar HP

The Care & Repair Conditioning Shampoo „Dubai“

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Give a new life to  
your hair thanks to  
our  
Care & Repair  
Conditioning  
Shampoo “Dubai”

The Care & Repair Conditioning Shampoo “Dubai” is based on a high performance conditioning combination of **Dehyquart® Guar HP** and the conditioner booster **Plantasil® 4V**. The pearlizer concentrate **Euperlan® PK 710** gives a luxurious, brilliant appearance to the product.

# Dehyquart® Guar HP

## The Care & Repair Conditioning Shampoo „Dubai“



### Manufacturing Process

Mix ingredients of phase A while stirring in given order and allow to swell for 10 min. Add ingredients of phase B in given order, stirring after each addition until completely homogeneous. Adjust pH by adding phase C. Adjust viscosity by adding phase D. The amount of phase C and D is approximately

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	72.20	
	<b>Dehyquart® Guar HP</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% solution)	Citric Acid	0.10	pH Adjustment
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.40	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	<b>Plantasil® 4V</b>	<b>PEG-40 Hydrogenated Castor oil, PEG-7 Glyceryl Cocoate, PEG/PPG-120/10 Trimethylolpropane Trioleate, Glycerin</b>	<b>2.00</b>	<b>Conditioning agent</b>
	Euperlan® PK 710 Benz	Glycol Distearate, Sodium Laureth Sulfate, Cocamide MEA	3.00	Pearlizer
	Perfume Cotton Touch (Symrise)	Parfum	0.50	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
C	Citric Acid (50% solution)	Citric Acid	0.70	pH Adjustment
D	Sodium Chloride	Sodium Chloride	1.10	Rheology modifier

pH value (23°C) ~4.7

Viscosity (Brookfield; RVT; spindle 4; 10 rpm; 23°C) ~6 800 mPa•s

Density 20°C ~1.034 g/ml

HB-DE-14-017-51

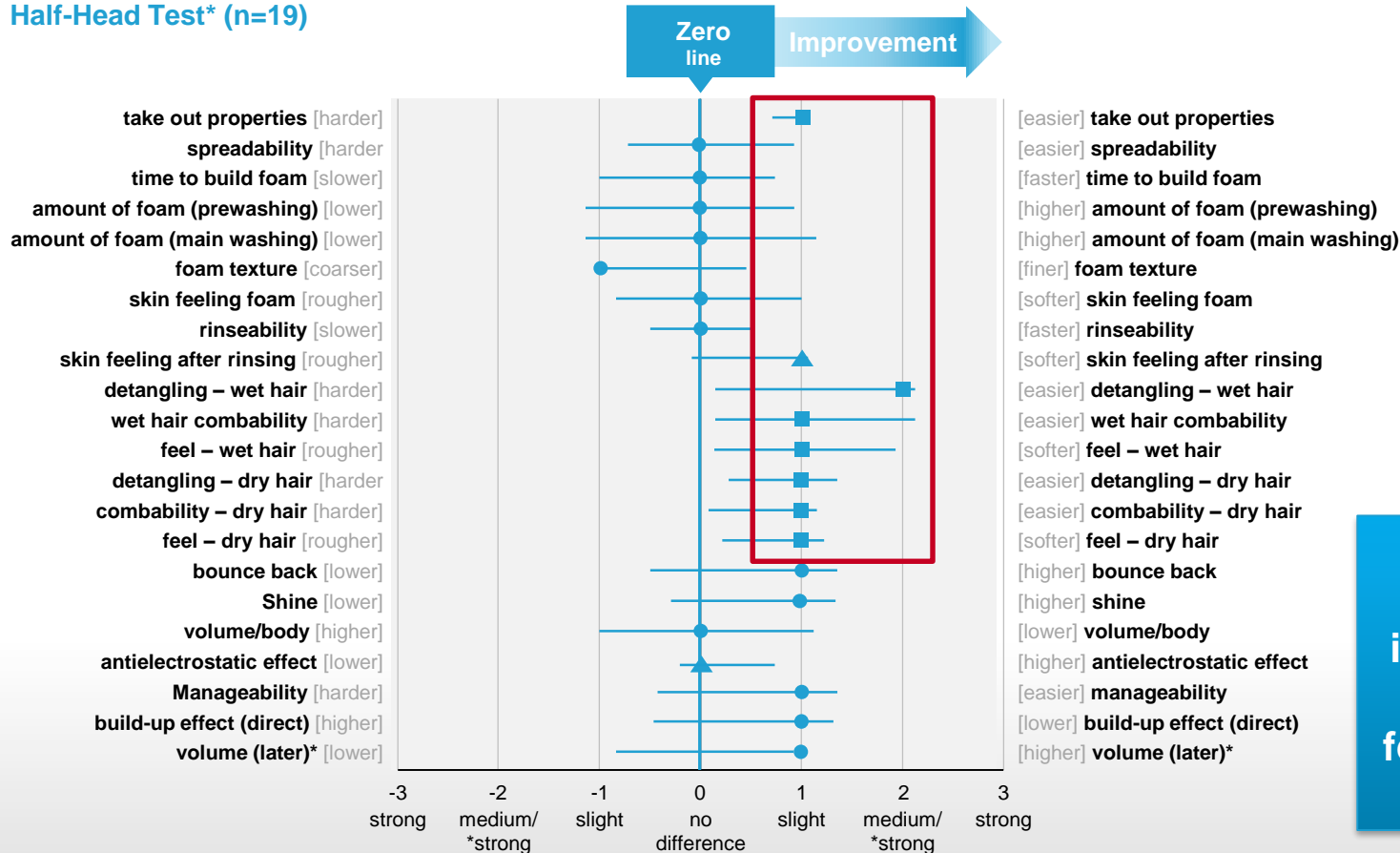


# Dehyquart® Guar HP

## Conditioning effects: Half-head test

The Care & Repair Conditioning Shampoo “Dubai” vs. Benchmark E

Half-Head Test\* (n=19)



- not significant
- ▲ significance ≥ 90%
- ◆ significance ≥ 95%
- significance ≥ 99%

Pairwise comparison of HB-DE-14-017-51 with reference Benchmark E containing ca. 1.5% dimethicone

**Significant improvement in combability, detangling & feel both in wet & dry hair**

\*externally done (Schrader Institute)



# Dehyquart® Guar HP

The Pearly Cream Conditioning Shampoo „Hawaii“

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Let your hair look  
perfect & radiant  
under the brilliant  
sun of Hawaii  
with our  
Pearly Cream  
Conditioning  
Shampoo

In our Pearly Cream Conditioning Shampoo “Hawaii” **Dehyquart® Guar HP** is associated with **Lamesoft® Care**, a micronized wax dispersion that provides an effective hair conditioning and protection effect combined with a luxurious, marbled appearance.

# Dehyquart® Guar HP

The Pearly Cream Conditioning Shampoo „Hawaii“



## Manufacturing Process

Phase A : To water add Dehyquart® Guar HP and a small amount of Citric acid under stirring and allow to swell for 5 minutes.

Add ingredients of phase B in given order, stirring after each addition until completely homogeneous

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	73.35	
	<b>Dehyquart® Guar HP</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% solution)	Citric Acid	0.05	pH Adjustment
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.40	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	<b>Lamesoft® CARE</b>	<b>PEG-4 Distearyl Ether, Sodium Laureth Sulfate, Distearyl Ether, Dicaprylyl Ether</b>	<b>4.00</b>	<b>Conditioning agent</b>
	Dehydol® LS 2 DEO N	Laureth-2	1.00	Stabilizer
	Perfume	Parfum	q.s.	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
	Citric Acid (50% solution)	Citric Acid	0.70	pH Adjustment
	Sodium Chloride	Sodium Chloride	0.50	Rheology modifier

pH-value (as is): ~4.9

Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~6800 mPa•s

Density 20°C ~1.027 g/cm<sup>3</sup>

HB-DE-09-058-57

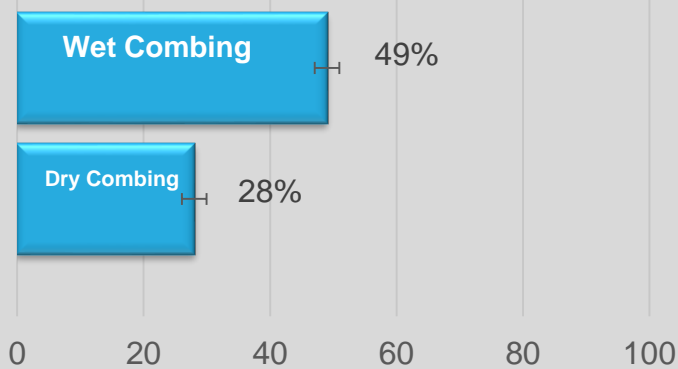
# Dehyquart® Guar HP

## Wet and Dry Combability

Caucasian hair strands



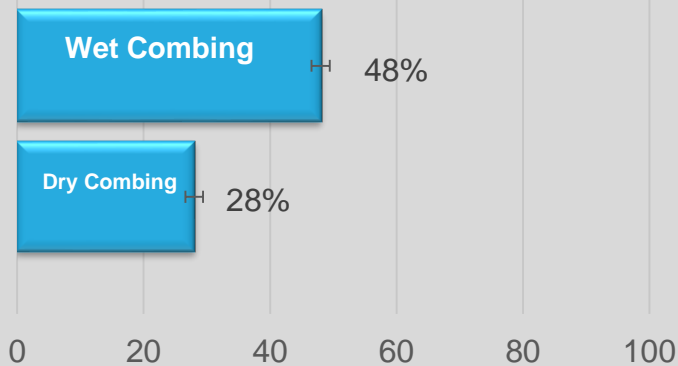
% residual combing work



Asian hair strands



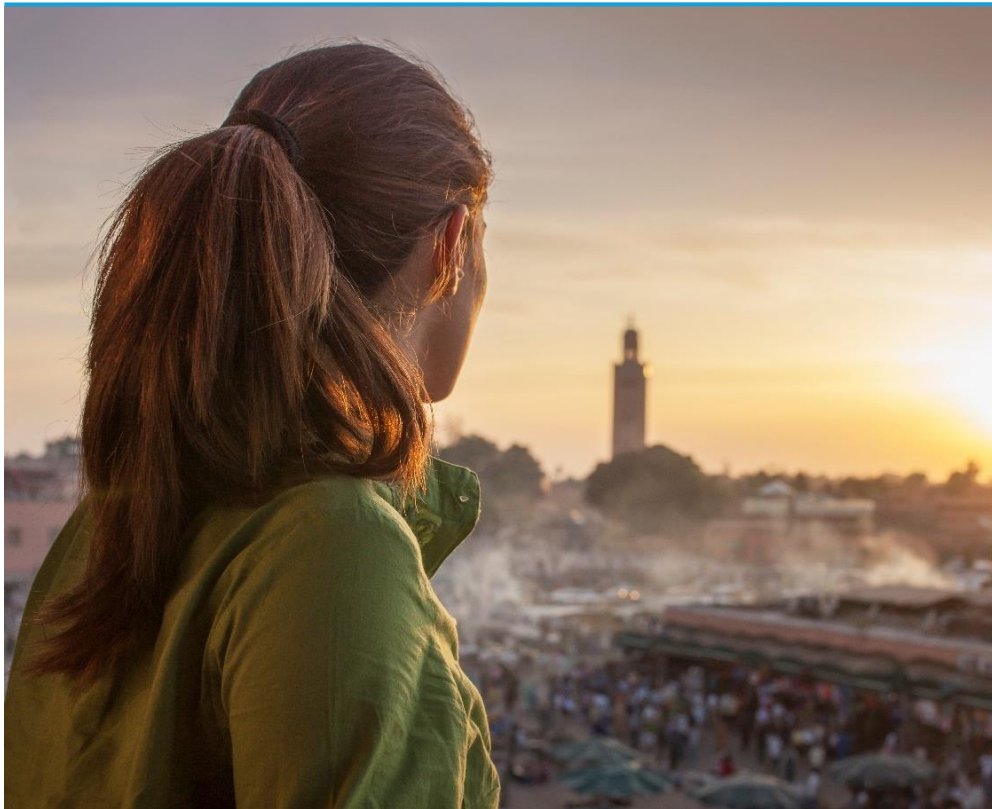
% residual combing work



**Shampoo "Hawaii"**  
**HB-DE-09-058-57**  
with 0.2 % Dehyquart® Guar HP  
and 4% Lamesoft® Care

# Dehyquart® Guar HP

The Extra Care Conditioner with Argan Oil „Marrakesh“



Rediscover the  
beauty of your hair  
with our  
“Marrakesh”  
Extra Care  
Conditioner with  
Argan Oil, the liquid  
gold from Morocco

The Extra Care Conditioner with Argan Oil “Marrakesh” contains **Dehyquart® Guar HP** in association with the cationic surfactant **Dehyquart® A CA** and the cationic emulsion base **Dehyquart® F 75**, for an strong care and conditioning effect. **Lypofructyl™ Argan**, our sustainable sourcing argan oil from Morocco, gives brightness, softness and silky effect to the hair.



# Dehyquart® Guar HP

The Extra Care Conditioner with Argan Oil „Marrakesh“



## Manufacturing Process

Heat phase A and phase B to 80-85°C. Add phase A to B while stirring. Cool down to 50-55 °C while stirring then homogenise. Cool down to 30-35°C while stirring then add phase C. Use phase D to adjust pH.

Ingredients	INCI	Weight %	Function
A Water, demin	Aqua	91.6	
DEHYQUART® A-CA	Cetrimonium Chloride	1.5	Conditioning Polymer
B DEHYQUART® F 75	Distearoylethyl Hydroxyethylmonium Methosulfate, Cetearyl Alcohol	1.0	Conditioning Polymer
<b>DEHYQUART® Guar HP</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>1.0</b>	<b>Conditioning Polymer</b>
Lanette® O	Cetearyl Alcohol	3.0	Consistency agent
Eutanol® G	Octyldodecanol	1.0	Emollient
Lipofructyl™ Argan LS 9779	Argania Spinosa Kernel Oil	0.3	Emollient
C Perfume Cotton Touch	Parfum	0.3	Fragrance
Sodium Benzoate	Sodium Benzoate	0.3	Preservative
D Citric Acid	Citric Acid	q.s.	pH adjusting

pH-value (as is): ~4.2

Viscosity (Brookfield RVT, 23 °C, spindle 5, 10 rpm) ~16,000 mPa•s

Density 20°C ~1.027 g/cm<sup>3</sup>

HB-DE-15-143-34

# Dehyquart<sup>®</sup> Guar TC

“Transparent Clear”  
Cationic Guar Polymer

# Dehyquart<sup>®</sup> Guar TC

„Transparent Clear“ Cationic Guar Polymer

Now with improved  
transparency !

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## Dehyquart<sup>®</sup> Guar TC - General use conditioning agent for all kind of transparent to clear rinse off formulations

- INCI: Guar Hydroxypropyltrimonium Chloride
- Appearance: Yellowish fine powder
- Active Matter: Approx. 90 %
- Dosage: 0.1 – 0.5 %

- Good conditioning performance for transparent cleansing systems
- Significantly improved wet and dry combability
- Positive influence on anti hair-breakage
- Soft skin feel
- Quality improvement of foam
- Cosmos approved \*

# Dehyquart® Guar TC

## Transparency & performance

### Test formulations

HB-DE-15-086	INCI	-09	-10	-13
Water, demin	Aqua	76.4	76.3	77.3
Texapon® N 70	Sodium Laureth Sulfate	14.3	14.3	14.3
Dehyton® PK 45	Cocamidopropyl Betaine	5.4	5.4	5.4
<b>Dehyquart Guar® TC</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>
Plantasil® Micro	Dicaprylyl Ether, Decyl Glucoside, Glyceryl Oleate	3.0	3.0	-
Plantasil® 4 V	PEG 40 Hydrogenated castor oil, PEG 7 Glyceryl Cocoate, PEG/PPG-120/10 Trimethylolpropane Trioleate, Glycerin	-	-	2.0
Perfume Cotton Touch	Parfum	0.3	0.3	0.3
Sodium Benzoate	Sodium Benzoate	0.5	0.5	0.5
Citric Acid 50%	Citric Acid	0.78	0.74	0.77
Arlypon® TT	PEG/PPG-120/ 10, Trimethylolpropane Trioleate, Laureth-2	1.41	1.4	0.5
Sodium Chloride	Sodium Chloride	1.1	1.0	1.53

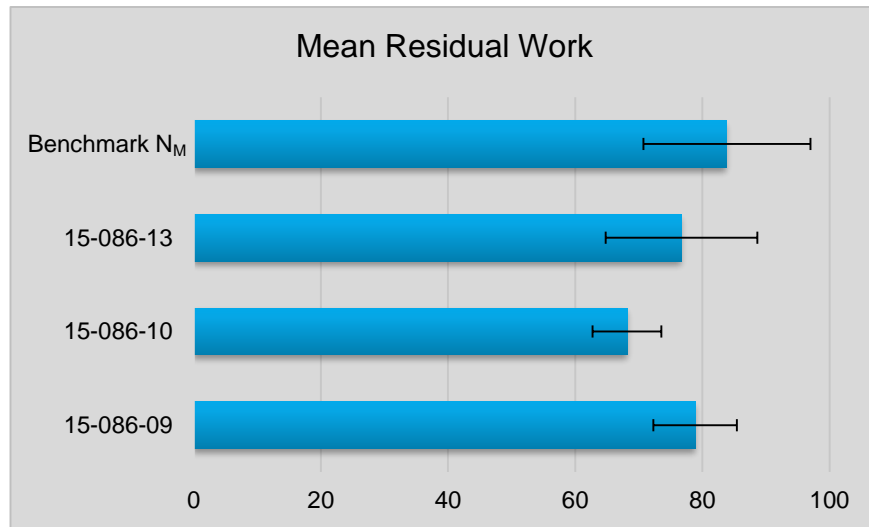
# Dehyquart® Guar TC

## Conditioning performance

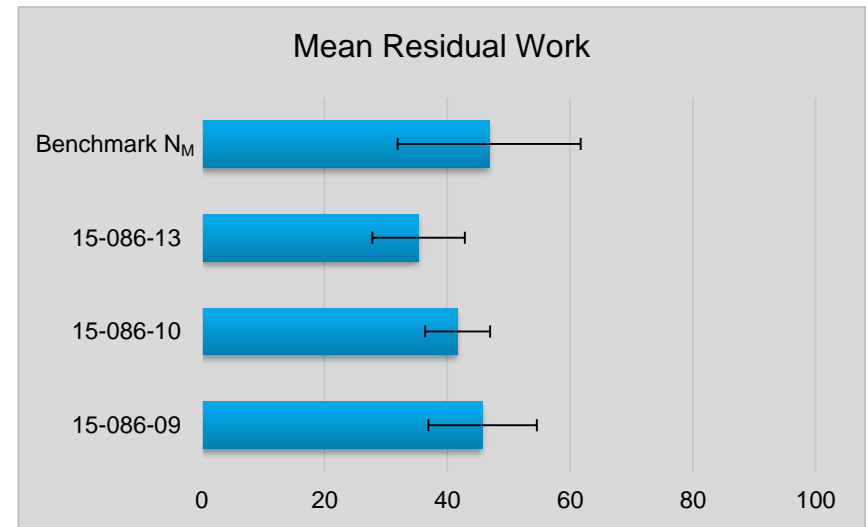
### Benchmark N<sub>M</sub>

INCI: Aqua, Sodium Laureth Sulfate, Cocamidopropyl Betaine, Sodium Chloride, Lanolin Alcohol (Eucerit®), Macadamia Ternifolia Seed Oil, Nymphaea Odorata Root Extract, Aloe Barbadensis Leaf Juice Powder, Glyceryl Glucoside, Panthenol, Polyquaternium-10, Guar Hydroxypropyltrimonium Chloride, PEG-40 Hydrogenated Castor Oil, Glycerin, Citric Acid, Sodium Benzoate, Propylene Glycol, Citronellol, Limonene, Alpha-Isomethyl Ionone, Benzyl Alcohol, Parfum

### Wet combing Work



### Dry combing Work



Formulations with Dehyquart® Guar TC are matching or even outperforming the benchmark performance on wet & dry combability



# Dehyquart® Guar TC

## Transparency



Benchmark N<sub>V</sub>

HB-DE-15-086-09

Benchmark N<sub>M</sub>



Benchmark N<sub>V</sub>

HB-DE-15-086-10

Benchmark N<sub>M</sub>



Benchmark N<sub>V</sub>

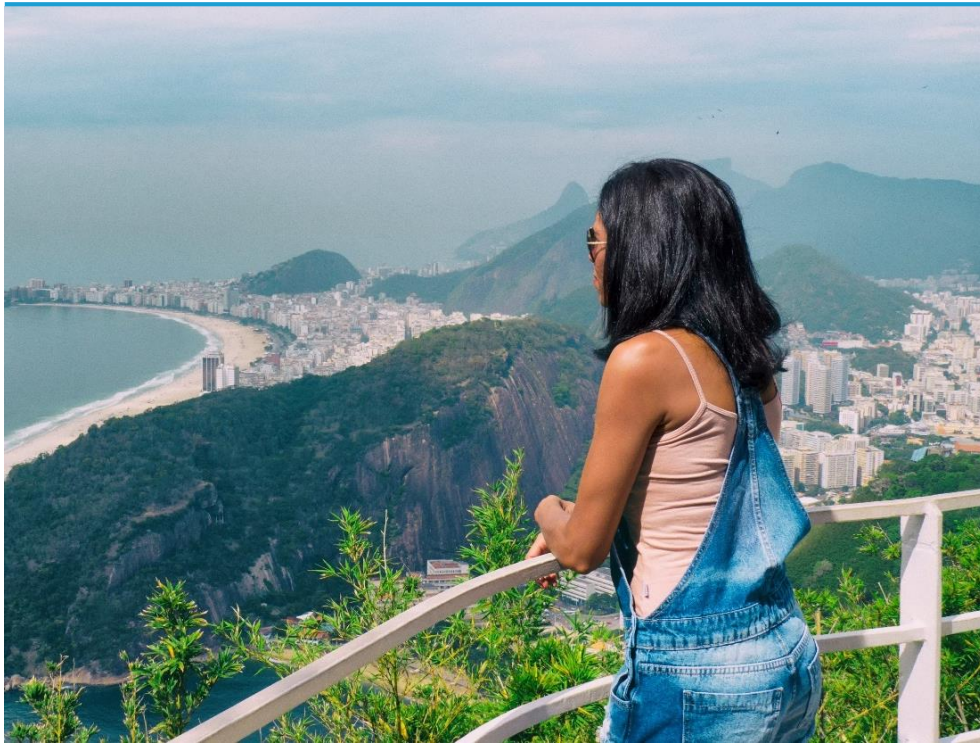
HB-DE-15-086-13

Benchmark N<sub>M</sub>

**Formulations with Dehyquart® Guar TC are showing a good level of transparency, in the range of benchmarks**

# Dehyquart® Guar TC

The Easy-going Clear Conditioning Shampoo „Rio“



Impress everyone  
with your hair at  
the beaches of  
Rio thanks to our  
Easy-going Clear  
Conditioning  
Shampoo

The Easy-going Clear Conditioning Shampoo “Rio” contains the combination of **Dehyquart® Guar TC** with the conditioner booster **Plantasil® 4V**, for a comfortable daily hairstyle. **Arlypon® TT** provides the right viscosity to the formulation.

# Dehyquart® Guar TC

The Easy-going Clear Conditioning Shampoo „Rio“



## Manufacturing Process

Mix ingredients of phase A while stirring in given order and allow to swell for 10 min. Add ingredients of phase B in given order, stirring after each addition until completely homogeneous. Adjust pH by adding phase C. Adjust viscosity by adding phase D. The amount of phase C and D is approximately.

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	74.43	
	<b>Dehyquart® Guar TC</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% sol.)	Citric Acid	0.10	pH Adjustment
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.40	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	<b>Plantasil® 4V</b>	<b>PEG-40 Hydrogenated Castor oil, PEG-7 Glyceryl Cocoate, PEG/PPG-120/10 Trimethylolpropane Trioleate, Glycerin</b>	<b>2.00</b>	<b>Conditioning agent</b>
	Arlypon® TT	PEG/PPG-120/10 Trimethylolpropane Trioleate, Laureth-2	0.50	Rheology modifier
	Perfume Cotton Touch (Symrise)	Parfum	0.30	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
C	Citric Acid (50% sol.)	Citric Acid	0.77	pH Adjustment
D	Sodium Chloride	Sodium Chloride	1.50	Rheology modifier

pH-value (23°C): 4.8

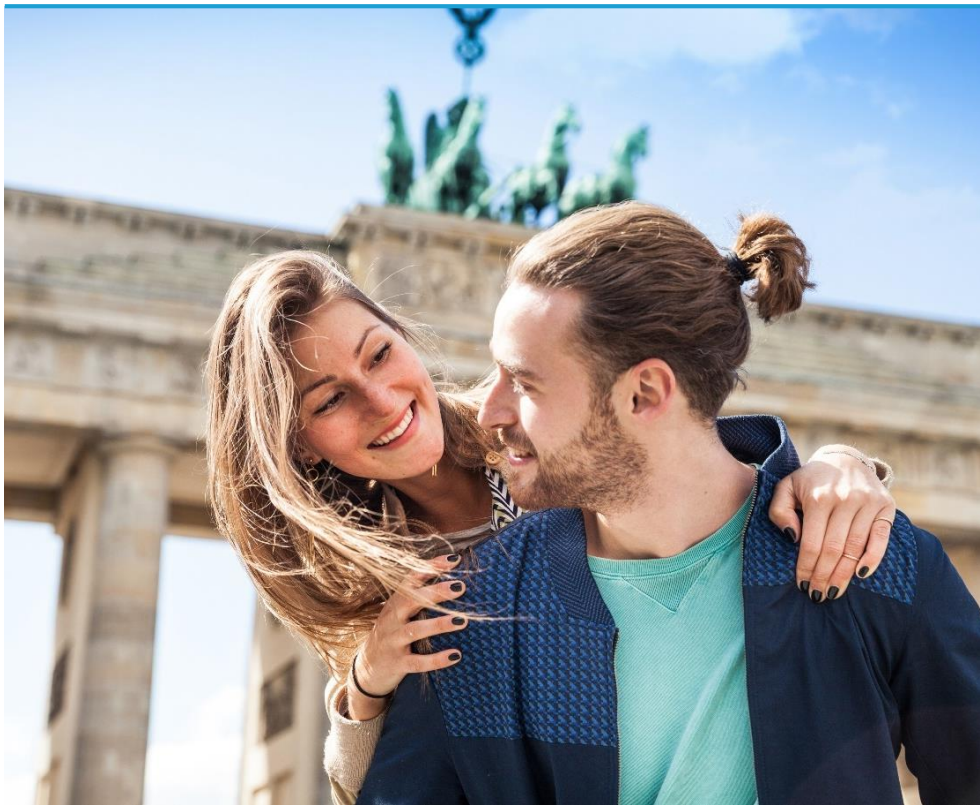
Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~10.000 mPa•s

HB-DE-15-086-13

Care  
Creations™

# Dehyquart® Guar TC

The XL-Volume Conditioning Shampoo „Berlin“



Give a beautiful and impressive volume to your hair with our XL-Volume Conditioning Shampoo “Berlin”

The transparent XL-Volume Conditioning Shampoo “Berlin” is based on the combination of **Dehyquart® Guar TC** with our eco-friendly oil-conditioning microemulsion **Plantasil® Micro**. This combination has specially shown very good performance to provide volume to hair.



# Dehyquart® Guar TC

## The XL-Volume Conditioning Shampoo „Berlin“



### Manufacturing Process

Mix ingredients of phase A while stirring in given order and allow to swell for 10 min. Add ingredients of phase B in given order, stirring after each addition until completely homogeneous. Adjust pH by adding phase C. Adjust viscosity by adding phase D. The amount of phase C and D is approximately

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	73.06	
	<b>Dehyquart® Guar TC</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% sol.)	Citric Acid	0.10	pH Adjustment
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.40	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	<b>Plantasil® Micro</b>	<b>Dicaprylyl Ether, Decyl Glucoside, Glyceryl Oleate</b>	<b>3.00</b>	<b>Conditioning agent</b>
	Arlypon® TT	PEG/PPG-120/10 Trimethylolpropane Trioleate, Laureth-2	1.40	Rheology modifier
	Perfume Cotton Touch (Symrise)	Parfum	0.30	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
C	Citric Acid (50% sol.)	Citric Acid	0.74	pH Adjustment
D	Sodium Chloride	Sodium Chloride	1.00	Rheology modifier

pH-value (23°C): 4.8

Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~6.600 mPa•s

HB-DE-15-086-10



# Dehyquart® Guar TC

## Efficacy tests – Volume

### Benchmark N<sub>v</sub>

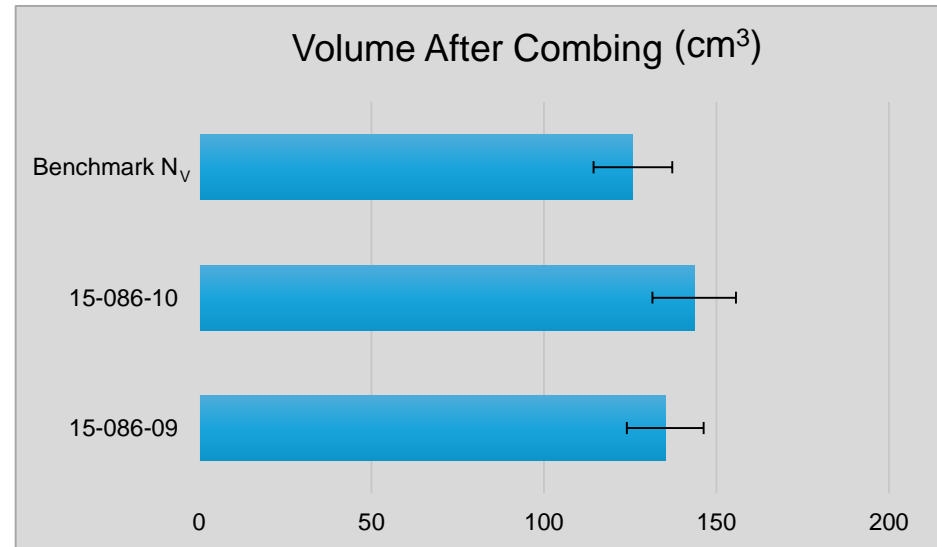
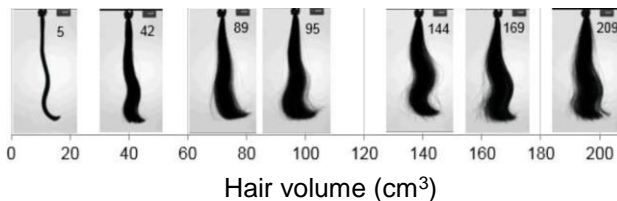
INCI: Aqua, Sodium Laureth Sulfate, Cocamidopropyl Betaine, Sodium Chloride, Lanolin Alcohol, Macadamia Ternifolia Seed Oil, Bambusa Vulgaris Shoot Extract (Extract, Shoots), **Polyquaternium-10**, **Guar Hydroxypropyltrimonium Chloride**, Glycerin, Propylene Glycol, PEG-40 Hydrogenated Castor Oil (Hydrogenated), Sodium Benzoate, Citric Acid, Benzyl Alcohol, Citronellol, parfum

### Protocol for volumen determination



Images of a hair strand are taken at different angles, allowing the calculation of the volume via digital image analysis

Hair Volume Scale



**Dehyquart® Guar TC – specially in combination with Plantasil® Micro- allows the formulation of transparent volume shampoos with very good performance versus benchmark**

# Dehyquart® Guar TC

## The Family-Friendly Body Wash „Orlando“

 **BASF**  
We create chemistry



With our Family-Friendly Body Wash “Orlando” the skin is cared with a natural biolipid... and ready for a fun day!

The transparent Family-Friendly Body Wash “Orlando” is based on **Dehyquart® Guar TC** for a perceivable skin conditioning, combined with **Lamesoft® PO 65**, a „biolipid“ to soften and moisturize the skin. **Cetiol® LDO** contributes to the creamy foam and nice skin feel.

# Dehyquart® Guar TC

## The Family-Friendly Body Wash „Orlando“



### Manufacturing Process

Mix the ingredients of phase A in the given order while stirring. Allow it to swell for 10 minutes. Add phase B in the given order while stirring.

	Ingredients	INCI	Weight %	Function
A	Water, demin.	Aqua	74.53	
	<b>Dehyquart® Guar TC</b>	<b>Guar Hydroxypropyltrimonium Chloride</b>	<b>0.20</b>	<b>Conditioning agent</b>
	Citric Acid (50% solution)	Citric Acid	0.06	Neutralizing agent
B	Dehyton® PK 45	Cocamidopropyl Betaine	5.40	Surfactant
	Texapon® N 70	Sodium Laureth Sulfate	14.30	Surfactant
	Lamesoft® PO 65	Coco-Glucoside, Glyceryl Oleate	3.00	Lipid layer enhancer
	Cetiol® LDO	Dicaprylyl Ether, Lauryl Alcohol	0.70	Emollient
	Perfume	Parfum	q.s.	Fragrance
	Sodium Benzoate	Sodium Benzoate	0.50	Preservative
C	Citric Acid (50% solution)	Citric Acid	0.54	pH Adjustment
D	Sodium Chloride	Sodium Chloride	0.77	Rheology modifier

pH-value (as is): ~4.8

Viscosity (Brookfield RVT, 23 °C, spindle 4, 10 rpm) ~8400 mPa•s

HB-DE-09-058-92

# Dehyquart® Guar

## SUMMARY

	Dehyquart® Guar N	Dehyquart® Guar HP	Dehyquart® Guar TC
Recommended dosage	0.1 – 0.5 %	0.1 – 0.5 %	0.1 – 0.5 %
Benefits	<ul style="list-style-type: none"> <li>▪ Good conditioning properties</li> <li>▪ Improved wet and dry combability</li> <li>▪ Positive influence on anti hair-breakage</li> <li>▪ Soft skin feel</li> <li>▪ Quality improvement of foam</li> <li>▪ Cosmos approved *</li> </ul>	<ul style="list-style-type: none"> <li>▪ High conditioning performance.</li> <li>▪ Superior wet and dry combability</li> <li>▪ Positive influence on anti hair-breakage</li> <li>▪ Soft skin feel</li> <li>▪ Quality improvement of foam</li> <li>▪ Cosmos approved *</li> </ul>	<ul style="list-style-type: none"> <li>▪ Good conditioning performance for transparent cleansing systems</li> <li>▪ Significantly improved wet and dry combability</li> <li>▪ Positive influence on anti hair-breakage</li> <li>▪ Soft skin feel</li> <li>▪ Quality improvement of foam</li> <li>▪ Cosmos approved *</li> </ul>
Appearance in surfactant solutions	Translucent	Translucent	Clear
Key benefit	<p><b>Good conditioning properties</b> <b>Optimized cost-in-use</b></p>	<p><b>Strong conditioning properties</b></p>	<p><b>Good conditioning properties</b> <b>Transparency</b></p>
Application	Conditioning agent for all kind of <b>opaque/pearlized</b> rinse off formulations	Superior conditioning for all kind of <b>opaque/pearlized</b> rinse off formulations. Recommended when an <b>extra effect</b> is needed	Conditioning agent for all kind of <b>transparent to clear</b> rinse off formulations.  Suitable for transparent <b>volume</b> shampoos (esp. in combination with Plantasil® Micro)

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We create chemistry

# Dehyquart® Guar TC

## New quality with improved transparency

### Comparison old vs. new quality of Dehyquart® Guar TC

Test formulation:  
 14.3% Texapon® N 70  
 5.4% Dehyton® PK 45  
 0.2% Dehyquart® Guar TC  
 0.3% Perfume oil Cotton Touch  
 0.5% Sodium Benzoate

add to 100% Water,  
 Citric acid,  
 Sodium Chloride



Dehyquart® Guar TC old quality

Dehyquart® Guar TC new quality

% Transmittance at 550 nm	Dehyquart® Guar TC (old)	Dehyquart® Guar TC (new)
0.5% solution at pH=5 (cell 1cm)	92	93
0,5% in shampoo formulation (NaLES, CAPB, D. Guar & NaCl)	82	92

**Higher transmittance in formulation => better transparency**

# Dehyquart<sup>®</sup> Guar

## Processing

### Processing details

**Dehyquart<sup>®</sup> Guar** swelling process in cold water:

- Strew **Dehyquart<sup>®</sup> Guar** in cold water while stirring until the guar powder is distributed homogeneously.
- The swelling process will be initiated by adding citric acid (to adjust pH to 4-6, sequentially with agitation, viscosity will develop immediately).
- Continue with the surfactant addition while stirring.

# Overview of performance of Dehyquart<sup>®</sup> Guar in comparison to other natural- based cationic polymers

# Dehyquart® Guar

## Overview of performance of natural-based conditioning polymers

	INCI	Wet combability	Dry combability	Transparency
<b>Dehyquart® Guar N</b>	Guar Hydroxypropyltrimonium Chloride	++	++	-
<b>Dehyquart® Guar HP</b>	Guar Hydroxypropyltrimonium Chloride	+++	+++	-
<b>Dehyquart® Guar TC</b>	Guar Hydroxypropyltrimonium Chloride	++	++	++
<b>Other natural based conditioning polymers</b>				
	Hydroxypropyl Guar Hydroxypropyltrimonium Chloride	+	+	++
	Polyquaternium-10 (cellulose based)	++	+	+++

# Dehyquart® Guar as alternative to Polyquaternium-10

Two main possibilities are recommended :

- **Dehyquart® Guar HP:** for opaque or pearlized formulations only, will provide superior performance.

According our results **Dehyquart® Guar HP** shows:

- ✓ Better silicone deposition in hair, thus enhancing the conditioning efficacy in silicone containing formulations
- ✓ Much higher reduction of the wet combability force in most formulations
- ✓ Better dry combability performance in all types of formulations

- **Dehyquart® Guar TC:** for universal use in all type of formulations, transparent, opaque and pearlized, it is providing:

- ✓ Similar efficacy in wet combability
- ✓ Better dry combability

**Remark:** Even when formulations with Dehyquart® Guar TC are transparent, Polyquaternium-10 may show higher level of clarity

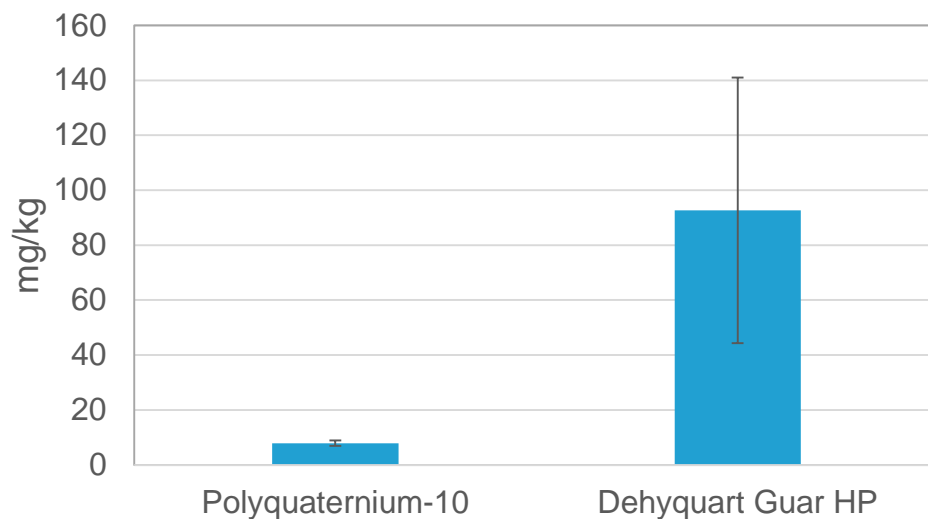
Dehyquart® Guar HP used at same concentration, offers significantly stronger performance in hair conditioning compared to Polyquaternium-10. Alternatively, concentration can be reduced to achieve similar performance

Dehyquart® Guar TC used at same concentration than Polyquaternium-10 shows equivalent efficacy in wet and improved performance in dry combability



# Differentiation between Dehyquart® Guar HP and Polyquaternium-10 in silicone-based opaque & pearlized formulations

Silicone Deposition



Formulation HB-DE-	15-086-01	15-086-03
Texapon® N 70	18.60	18.60
Dehyton® PK 45	5.40	5.40
Lanette® O	2.00	2.00
Dimethicone *	1.00	1.00
Polyquaternium-10	0.20	-
Dehyquart® Guar HP	-	0.20
Euperlan® PK 710	5.00	5.00
Arlypon® TT	1.42	1.20
Preservative, perfume	q.s.	q.s.
Aqua	to 100	to 100

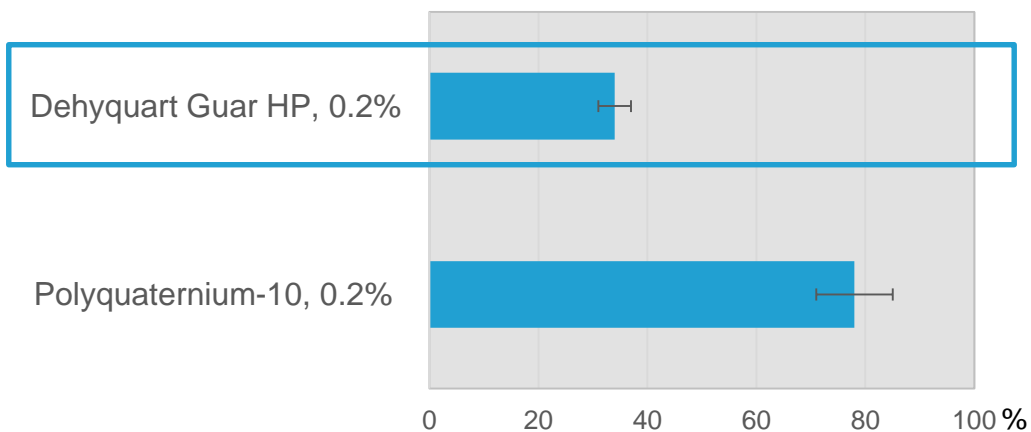
\* Wacker Belsil DM 60000

**Protocol:** Extraction with 2-propanol / o-xylene (1: 1) by means of atomic emission spectrometry (ICP-OES) against a Polydimethylsiloxane standard

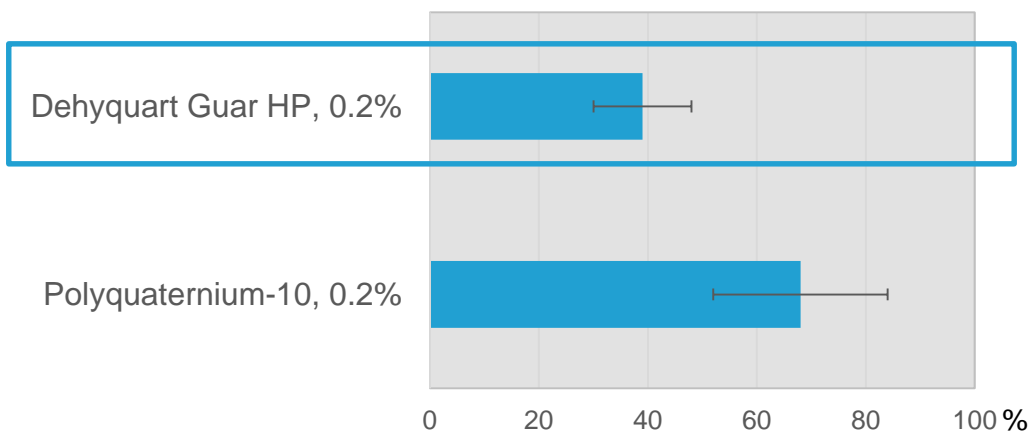
**Dehyquart® Guar HP supports the deposition of silicone on hair much more effectively than Polyquaternium-10, thus showing a much stronger conditioning effect**

# Differentiation between Dehyquart® Guar HP and Polyquaternium-10 in silicone-based opaque & pearlized formulations

Residual wet combing results



Residual dry combing results



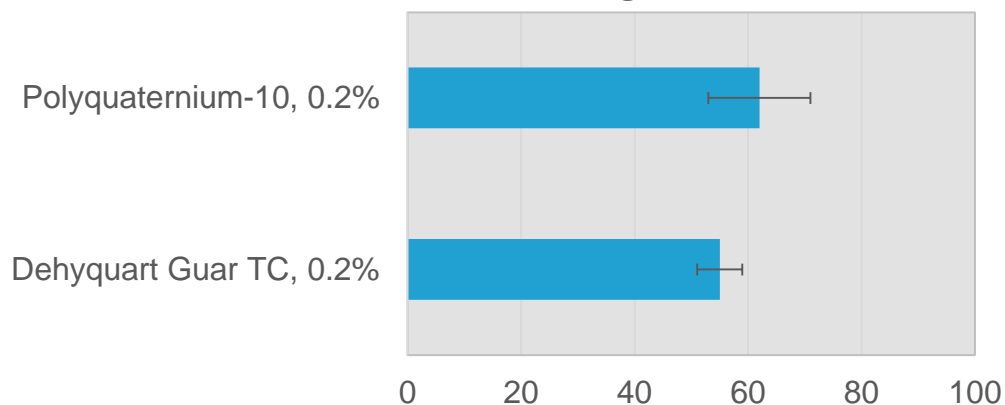
Formulation HB-DE-	15-086-01	15-086-03
Texapon® N 70	18.60	18.60
Dehyton® PK 45	5.40	5.40
Lanette® O	2.00	2.00
Dimethicone *	1.00	1.00
Polyquaternium-10	0.20	-
Dehyquart® Guar HP	-	0.20
Euperlan® PK 710	5.00	5.00
Arlypon® TT	1.42	1.20
Preservative, perfume	q.s.	q.s.
Aqua	to 100	to 100

\* Wacker Belsil DM 60000

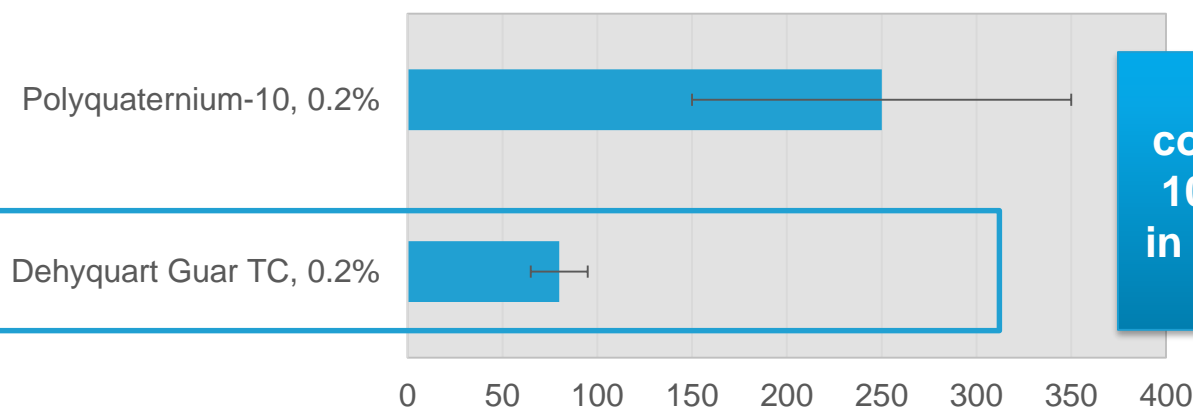
**This stronger conditioning performance of Dehyquart® Guar HP is confirmed by a significantly higher efficacy in wet & dry combability than Polyquaternium-10**

# Differentiation between Dehyquart® Guar TC and Polyquaternium-10 in transparent formulations

## Wet Combing



## Dry Combing



Formulation HB-DE-	14-270-69	14-270-71
Aqua	to 100	to 100
Polyquaternium-10	0.20	-
Dehyquart® Guar TC	-	0.20
Dehyton® PK 45	5.40	5.40
Texapon® N 70	14.30	14.30
Plantasil® Micro	3.00	3.00
Arlypon® TT	1.00	1.00
Preservative, perfume	q.s.	q.s.
Sodium Chloride	1.00	1.00

**Dehyquart® Guar TC, in comparison to Polyquaternium-10, shows similar performance in wet combability and improved dry combability**

# Dehyquart® Guar show an advantageous biodegradability profile vs. other conditioning polymers

	INCI	Biodegradability
<b>Dehyquart® Guar N</b>	Guar Hydroxypropyltrimonium Chloride	The substance is readily biodegradable, but failed the 10 days window
<b>Dehyquart® Guar HP</b>	Guar Hydroxypropyltrimonium Chloride	The substance is readily biodegradable, but failed the 10 days window
<b>Dehyquart® Guar TC</b>	Guar Hydroxypropyltrimonium Chloride	The substance is readily biodegradable, but failed the 10 days window
<b><i>Other conditioning polymers</i></b>		
	Polyquaternium-6	Poorly biodegradable
	Polyquaternium-7	Poorly biodegradable
	Polyquaternium-10	The substance is expected to be poorly biodegradable