



Genamin<sup>®</sup> Quats

**THE 'MOST WANTED' HAIR  
CONDITIONING PACKAGE  
FOR CREAM RINSE**

**CLARIANT** 

Public

Dr. Tom Fricke  
BU Industrial & Consumer Specialties  
AD Personal Care  
March 2010

what is precious to you?

# Quaternary Ammonium Compounds

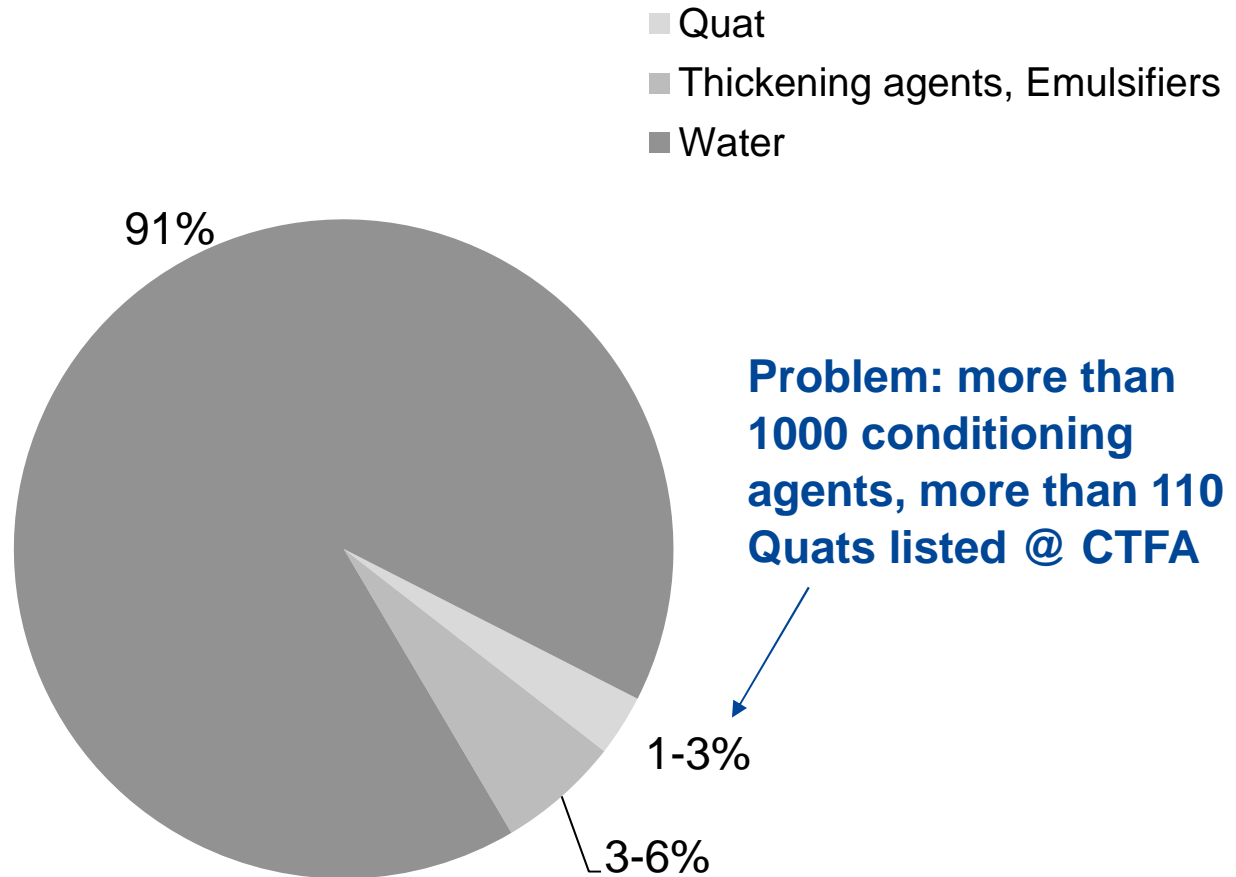
- **Genamin<sup>®</sup> KDMP / BTLF**
  - Behentrimonium Chloride
- **Genamin<sup>®</sup> STAC**
  - Steartrimonium Chloride
- **Genamin<sup>®</sup> CTAC / CTAC 50 / CTAC 50 ET**
  - Cetrimonium Chloride
- **Genamin<sup>®</sup> DSAP**
  - Distearyldimonium Chloride
- **Genamin<sup>®</sup> PQ-43**
  - Polyquaternium-43
- **Genamin<sup>®</sup> PDAC**
  - Polyquaternium-6

## Genamin<sup>®</sup> Quats: Summary

- Behentrimonium Chloride (Genamin<sup>®</sup> KDMP / BTLF) in combination with Cetrimonium Chloride (Genamin<sup>®</sup> CTAC) is the established market standard for superior cream rinse formulations
- Clariant market leader in Behentrimonium Chloride production
- Depending on the final product segment, Clariant provides various grades of Genamin<sup>®</sup> Quats
- Genamin<sup>®</sup> PQ 43 is a unique aqueous solution for body wash formulation: Compatible with SLES and other anionic surfactants, easy to handle, effective
- Clariant formulation expertise: Broad variety of guide recipes and manufacturing advises available on request
  - Cream rinse formulation for all type of hair
  - Two phase leave on
  - Foam / Mousse

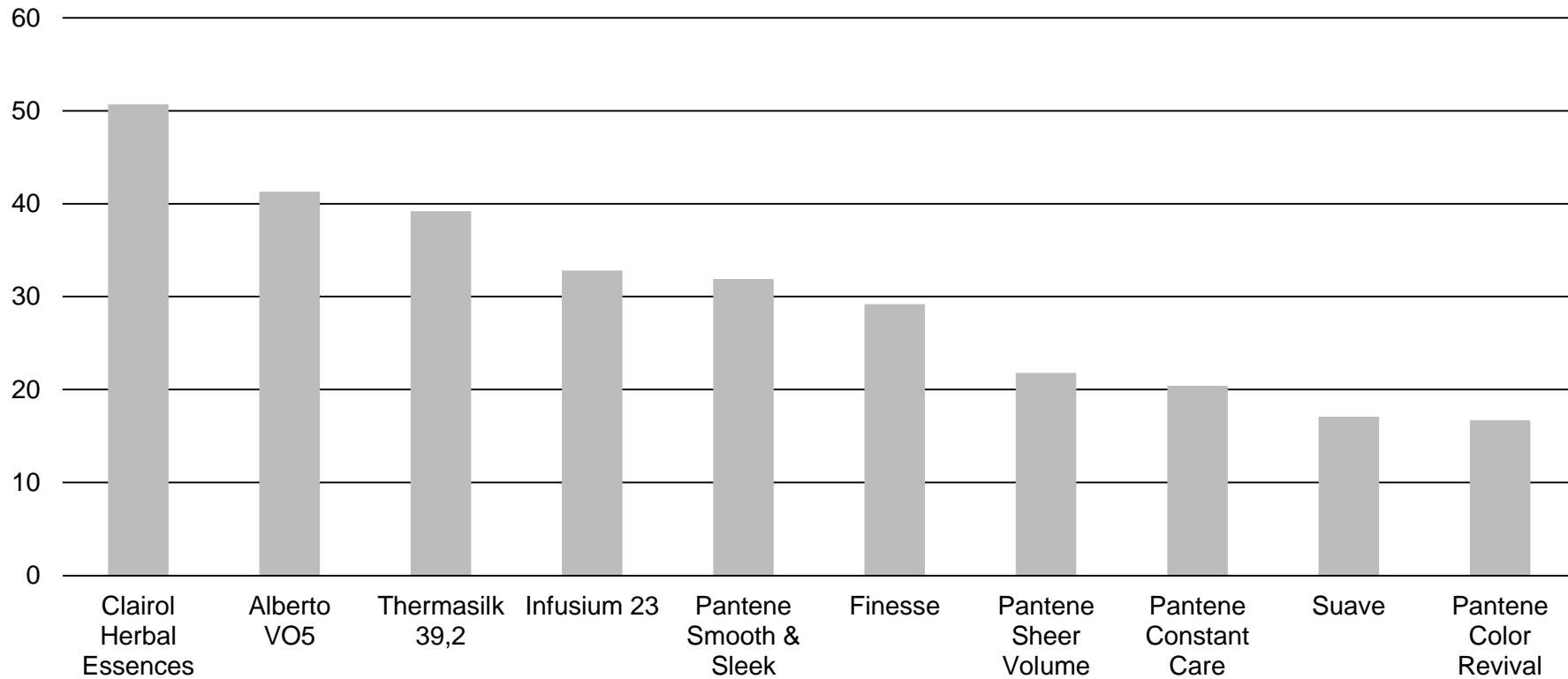
# Composition of Hair Rinses

- Quat
- Emulsifier
- Thickening Agent
- Oils
- Active Ingredients
- Fragrance
- Acids
- Dyestuff solution
- Water



# Leading US Conditioners

Ranked by dollar sales (in millions) for the year ended Oct. 2002



Source: Information Resources Inc., HAPPI 12/2002

# CLAIROL Herbal Essences Intensive Blends Conditioner, Protecting for Colored / Permed Hair

## Ingredients

- Water, Cetearyl Alcohol, Cetyl Esters, **Behentrimonium Chloride**, Panthenol, Aloe Barbadensis Leaf Juice, (Safflower) Seed Oil, Hydrolyzed Vegetable Protein, Gardenia Florida Extract, Tocopherol, Amodimethicone, Cyclomethicone, Citric Acid, Stearamidopropyl Dimethylamine, Dimethicone Copolyol, **Cetrimonium Chloride**, Fragrance, Propylene Glycol, Disodium EDTA, Trideceth 12, Methylparaben, Propylparaben, Methylchloroisoithiazolinone, Methylisothiazolinone, Ext. Violet 2

## Claim

- Herbal Essences Intensive Blends Protecting Conditioner for Colored / Permed Hair:
  - Protects hair condition
  - Actually enriches color treated hair
  - Provides beautiful, long-lasting effects
  - Maintains the vitality & shine of color treated hair
  - Is great for everyday use



# Infusium 23

## Conditioner, Moisturizing for Normal to Dry Hair

### Ingredients

- Water, Cetearyl Alcohol, **Behentrimonium Chloride**, Cetyl Esters, Ammodimethicone, Panthenol, Dimethicone Copolyol, Glycerin, Betaine, Sorbitol, Serine, Glutamic Acid, PEG-8/SMDI Copolymer, Hydroxyethylcellulose, Glycine, Lysine, Threonine, Arginine, Alanine, Palmitoyl Myristyl Serinate, Behenic Acid, Oleic Acid, Palmitic Acid, Linoleic Acid, Stearic Acid, Proline, Arachidic Acid, PEG-8, **Cetrimonium Chloride**, Fragrance, Trideceth-12, Polyquaternium-11, Sodium PCA, Phenoxyethanol, DMDM Hydantoin, Propylparaben

### Claim

- **Corrects, Restores, Structurizes**
  - Infuses hair with 23 essential pro-vitamin & treatment ingredients
  - Releases tangles and leaves hair feeling silky and clean
  - Clean rinsing formula

Infusium 23 is specially formulated to fortify the hair cuticle, giving it healthy texture, improved manageability and liveliness. It rinses easily, releases tangles and leaves hair feeling clean, silky and greaseless without oily buildup.

# L'Oreal ColorVive Creme Conditioner, Regular

## Ingredients

- Water, Cetearyl Alcohol, **Behentrimonium Chloride**, Cetyl Esters, Amodimethicone, Camphor Benzalkonium Methosulfate, Fragrance, Methylparaben, Trideceth-12, **Cetrimonium Chloride**, Chlorhexidine Dihydrochloride

## Claim

- Only ColorVIVE Creme Conditioner has this unique formula with a Protective Ultraviolet Filter. ColorVIVE revitalizes the beauty of your color and keeps it truer, longer-without adding color or changing your hair color.





# CREAMRINSE B II / 1118

With Genamin<sup>®</sup> BTLF for excellent dry combability and volume, with Genamin<sup>®</sup> CTAC for perfect wet combability and anti-static effect

<b>A. Genamin<sup>®</sup> BTLF</b>	<b>(Clariant)</b>	<b>2.50%</b>
<i>Behentrimonium Chloride</i>		
<b>Genamin<sup>®</sup> CTAC</b>	<b>(Clariant)</b>	<b>3.00%</b>
<i>Cetrimonium Chloride</i>		
<b>Hostacerin<sup>®</sup> T-3</b>	<b>(Clariant)</b>	<b>1.50%</b>
<i>Ceteareth-3</i>		
Cetyl Alcohol		3.00 %
<b>B. Water</b>		ad 100.00 %
<b>C. Fragrance</b>		0.30 %
Dyestuff solution		q.s.
Preservative		q.s.
<b>D. Citric Acid (10 % in water) to pH 4,0</b>		q.s.

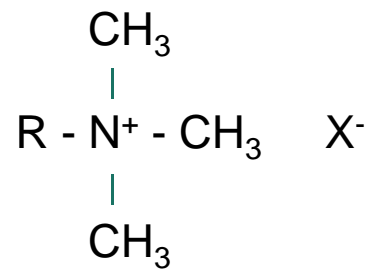
- I. Melt A at 75 °C.
- II. Heat B to 75 °C.
- III. Stir II into I.
- IV. Stir until cool.
- V. At 35 °C add the components of C to IV.
- VI. Finally adjust the pH with D.



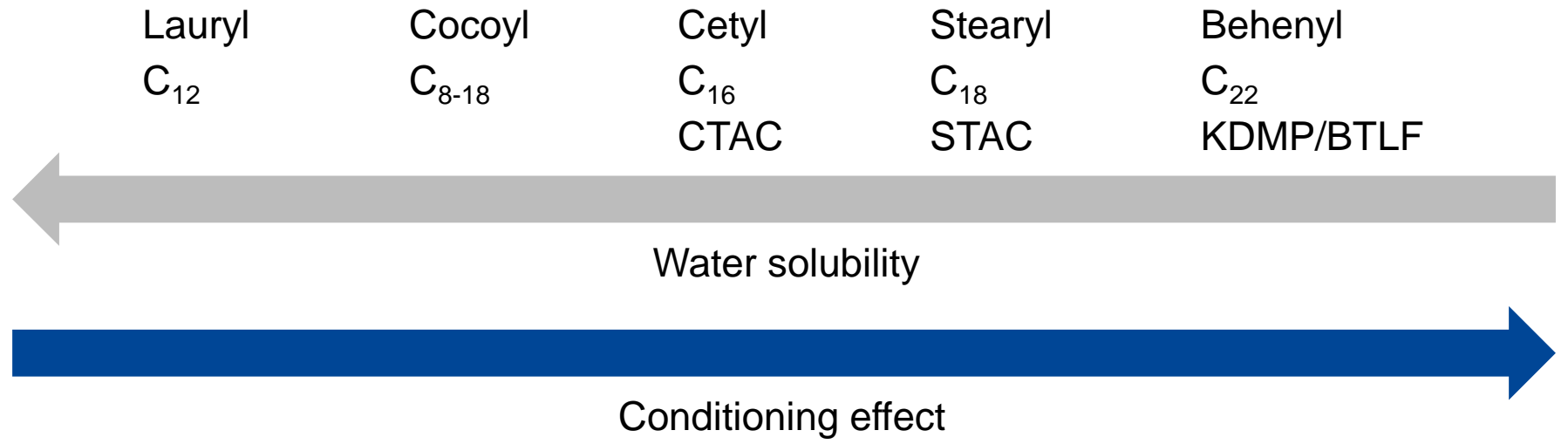
# Technical properties of Quat. Ammonium Compounds

	Usage concentration [%AI]	Wet Combing	Softening effect	Antistatic action
Genamin <sup>®</sup> CTAC	1.0 - 3.0	+++	0	++
Genamin <sup>®</sup> KDMP/BTLF	0.5 - 2.0	++	+++	+
Genamin <sup>®</sup> STAC	0.5 - 2.0	+	+	+
Genamin <sup>®</sup> DSAP	0.5 - 2.0	++	++	+

# Influence of Chemical Structure



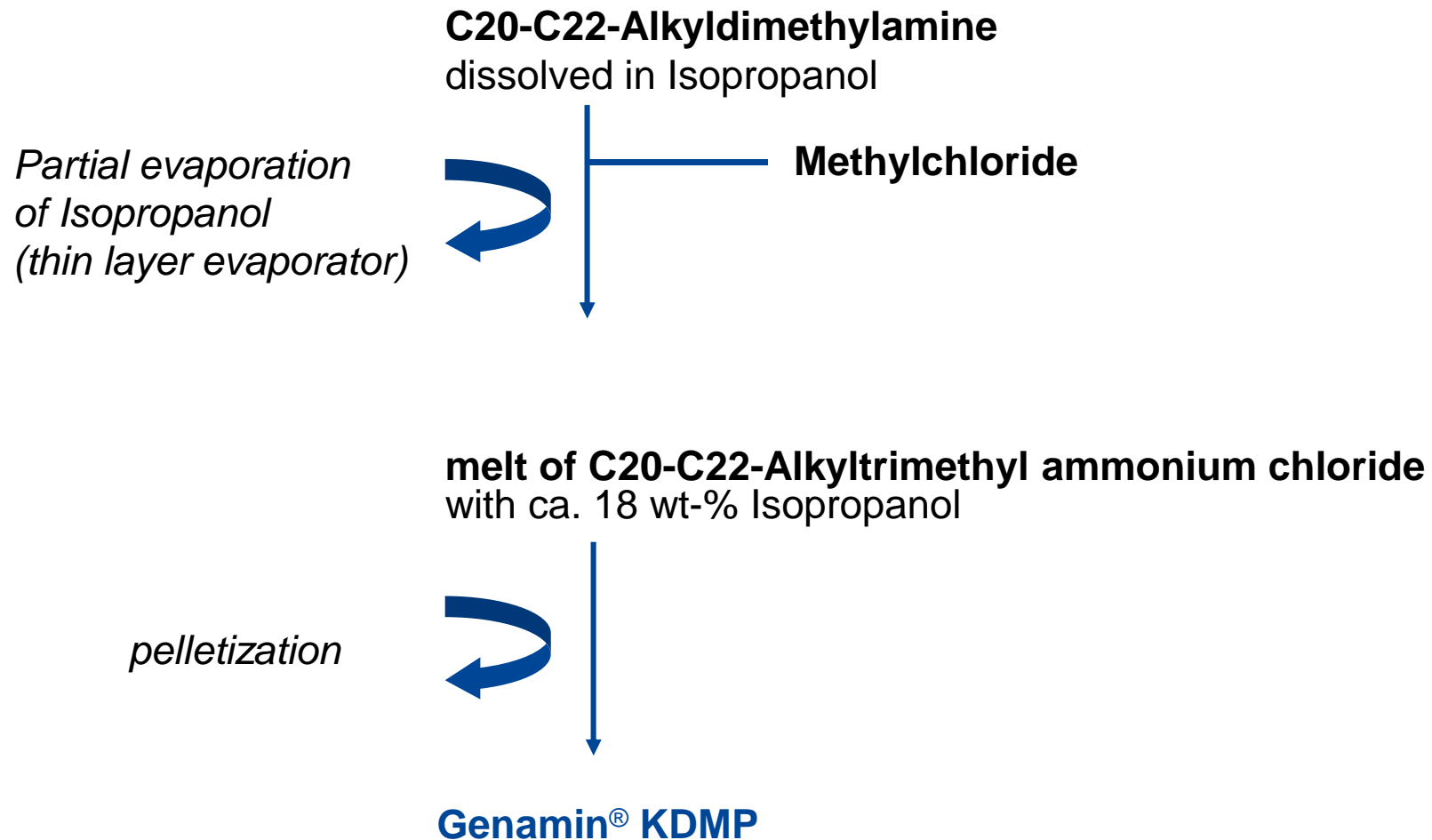
Monoalkyl-  
trimethyl



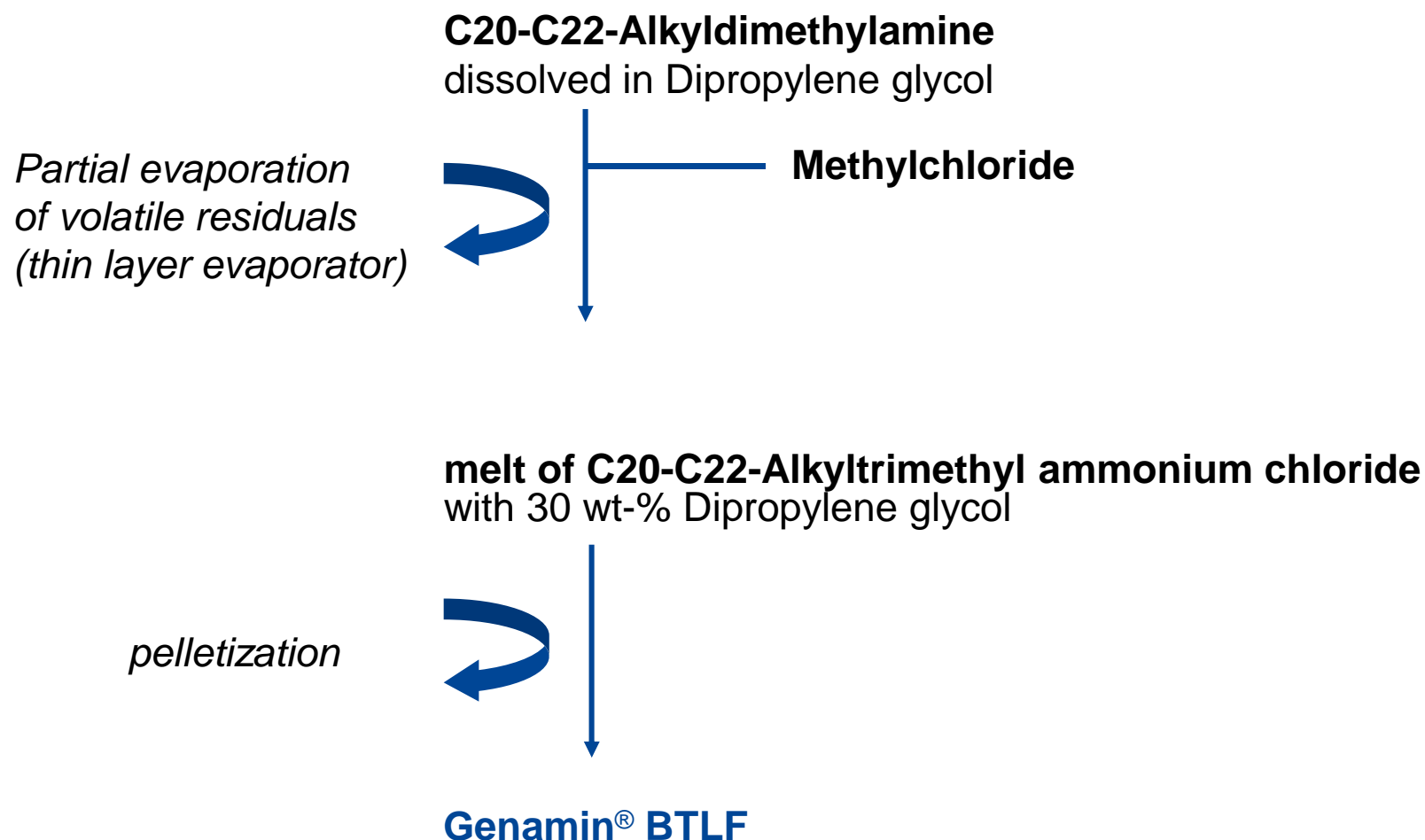
## Genamin<sup>®</sup> KDMP / BTLF

- INCI: Behentrimonium Chloride
  - Outstanding conditioner Quat
  - Gives volume and body to hair
  - Provides smooth, silky, "natural" feeling
  - Synergistic effects in combination with Genamin<sup>®</sup> CTAC
  - Excellent dry combability
  - Superior to silicones on damaged hair!

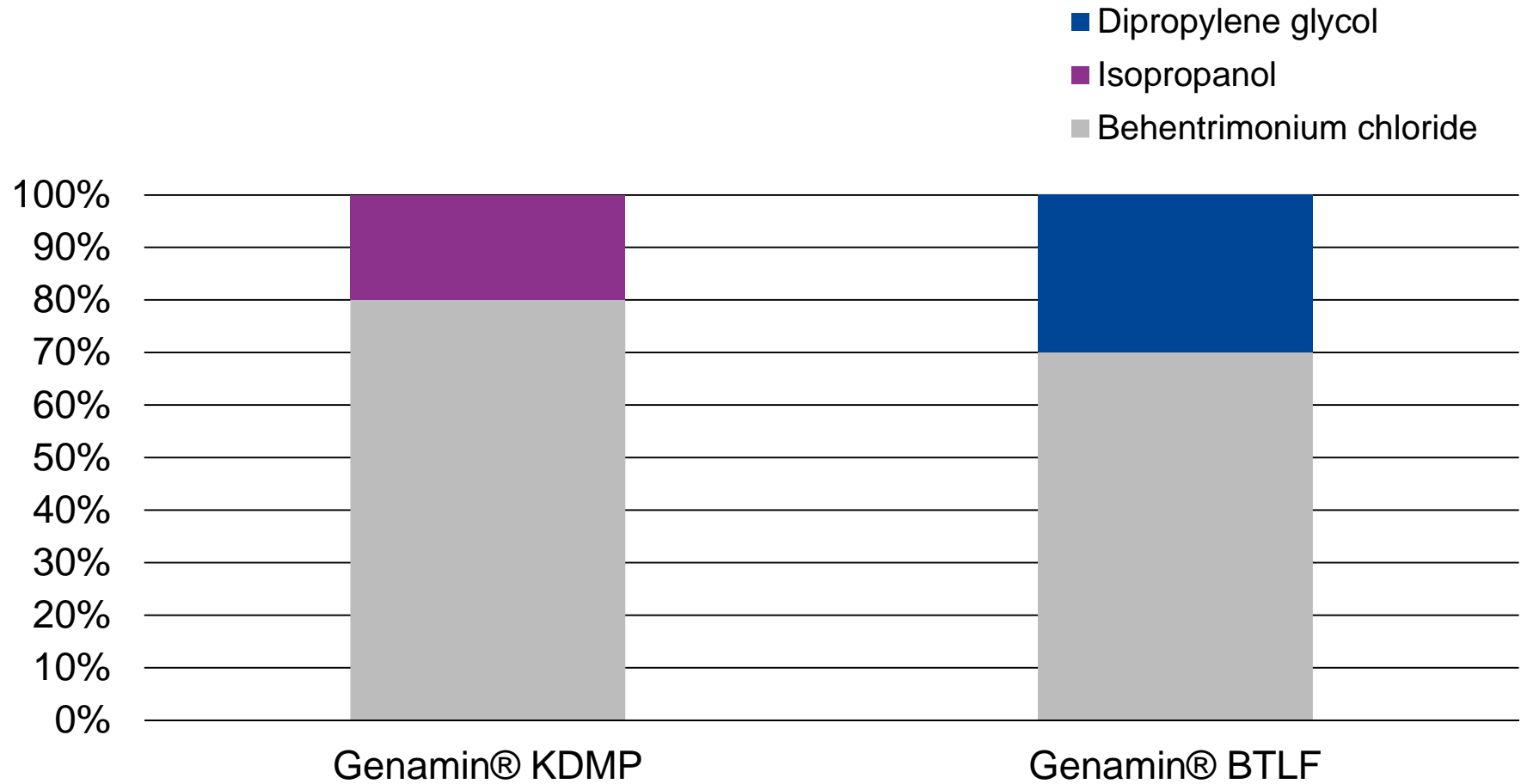
# Synthesis of Genamin<sup>®</sup> KDMP



# Synthesis of Genamin<sup>®</sup> BTLF



# Comparison composition Genamin<sup>®</sup> KDMP / Genamin<sup>®</sup> BTLF



# Preparing Cream Rinses with Genamin<sup>®</sup> KDMP

– Genamin<sup>®</sup> KDMP can be incorporated to both, the **aqueous** or the **oil** phase:

- Introduction via the **aqueous** phase

Safe use / no flammable vapour formed

requires hydrobic emulsifier with low HLB-value

e.g. Hostacerin<sup>®</sup> DGI (INCI: Polyglyceryl- 2 Sesquiisostearate)

- Introduction via the **oil** phase

requires hydrophilic emulsifier with high HLB-value

e.g. Hostaphat<sup>®</sup> KL 340 D (INCI: Trilaureth- 4 Phosphate)



# Genamin<sup>®</sup> CTAC

- INCI: Cetrimonium Chloride
  - Water-soluble
  - Very good antistatic properties
  - Excellent wet combability
  - Synergistic effects in combination with Genamin<sup>®</sup> KDMP

# Genamin<sup>®</sup> DSAP

- INCI: Distearyldimonium Chloride
  - Very good softening effect
  - Antistatic properties
  - High substantivity

## Genamin<sup>®</sup> PDAC

- INCI: Polyquaternium-6
  - Readily water-soluble
  - High substantivity to hair without leaving visible films
  - Compatible with amphoteric and anionic co-surfactants like amphotacetates and acylglutamates
  - Application in dyes, perms, conditioner shampoos and soaps

## Genamin<sup>®</sup> PQ 43 (former Bozequat 4000)

- INCI: Polyquaternium-43
- Liquid additive for rinse off surfactant based formulations: hair care and skin cleansing products
- Properties :
  - Leaves a pleasant and smooth/soft feel
  - Compatible with all types of surfactants (anionic, cationic, amphoteric)
  - Enhances shine
  - Antistatic benefits
  - Formulations are less slippery than PQ 10 based systems
- Applications: shower gels, soaps, shampoos  
hairstyling mousses, conditioners, hair gels, sprays
- Very effective: Typical usage concentration : 0,1 - 2 %

# Market Products with Genamin<sup>®</sup> PQ 43

## Garnier 2-in-1 Shower & Care

- Aqua, Sodium Laureth Sulfate, Glycerin, Coco-Betaine, Laureth-11, Carboxylic Acid, Sodium Chloride, Perfume, Hexylene Glycol, Disodium Laureth Sulfosuccinate, Citric Acid, Sodium Methylparaben, PEG-150 Distearate, **Polyquaternium-43**, DMDM Hydantoin, Polyquaternium-10, Tocopheryl Acetate



# Market Products with Genamin<sup>®</sup> PQ 43

## Tetesept: HydroCreme Dusche Milk & Flower

- Aqua, Sodium Laureth Sulfate, Glycerin, Cocamidopropyl Betaine, Ammonium Lauryl Sulfate, Perfume, Cocamide DEA, **Polyquaternium-43**, PEG-7 Glyceryl Cocoate, Styrene/Acrylates Copolymer, Sodium Caseinate, Propylene Glycol, Bletilla Striata, Citric Acid, Hydroxypropyl Guar Hydroxypropyltrimonium Chloride, Phenoxyethanol, Methylparaben, Ethylparaben, Propylparaben, Butylparaben, Isobutylparaben, Dehydroacetic Acid, Disodium EDTA



# CREAMRINSE FOR COLORED HAIR

## BII / 1128

A	<b>Genamin® KDMP</b>	(Clariant)	2.50 %
	<i>Behentrimonium Chloride</i>		
	<b>Genamin® CTAC</b>	(Clariant)	3.00 %
	<i>Cetrimonium Chloride</i>		
	Cetearyl Alcohol		4.00 %
	<b>Hostacerin® DGSB</b>	(Clariant)	1.50 %
	<i>PEG-4 Polyglyceryl-2-Stearate</i>		
	Isopropyl Palmitate		1.50 %
	Olive Oil		1.00 %
	<b>SilCare® Silicone 41M15</b>	(Clariant)	0.50 %
	<i>Caprylyl Methicone</i>		
	Uvinul MS 40		0.50 %
	<i>Benzophenone-4</i>		
B	Water		ad 100.00 %
	Sorbitol		2.00 %
	Glycerin		2.00 %
	D- Panthenol		1.00 %
C	Tocopheryl Acetate		0.50 %
	Extrapone Eibisch Special		2.00 %
	<i>Aqua, Ethoxydiglycol, Propylene Glycol, Althea Officinalis Extract, Butylene Glycol</i>		
	Cosi Silk soluble		1.00 %
	<i>Hydrolyzed Silk</i>		
	Chitin Liquid		1.00 %
	<i>Carboxymethylchitin</i>		
	Hydrotritricum WQ		1.00 %
	<i>Hydroxypropyltrimonium Hydrolyzed Wheat Protein</i>		
	Fragrance		0.30 %
	Dyestuff solution		q.s.
	Preservative		q.s.
D	Sodium Hydroxide to pH 4.0		q.s.

### Procedure

- I. Melt A at 80 °C
- II. Dissolve B and heat it to 80 °C
- III. Stir II into I and stir until cool
- IV. At 35 °C add the components of C to III
- V. Finally adjust the pH with D.



Thank you  
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