

**WACKER**

CREATING TOMORROW'S SOLUTIONS

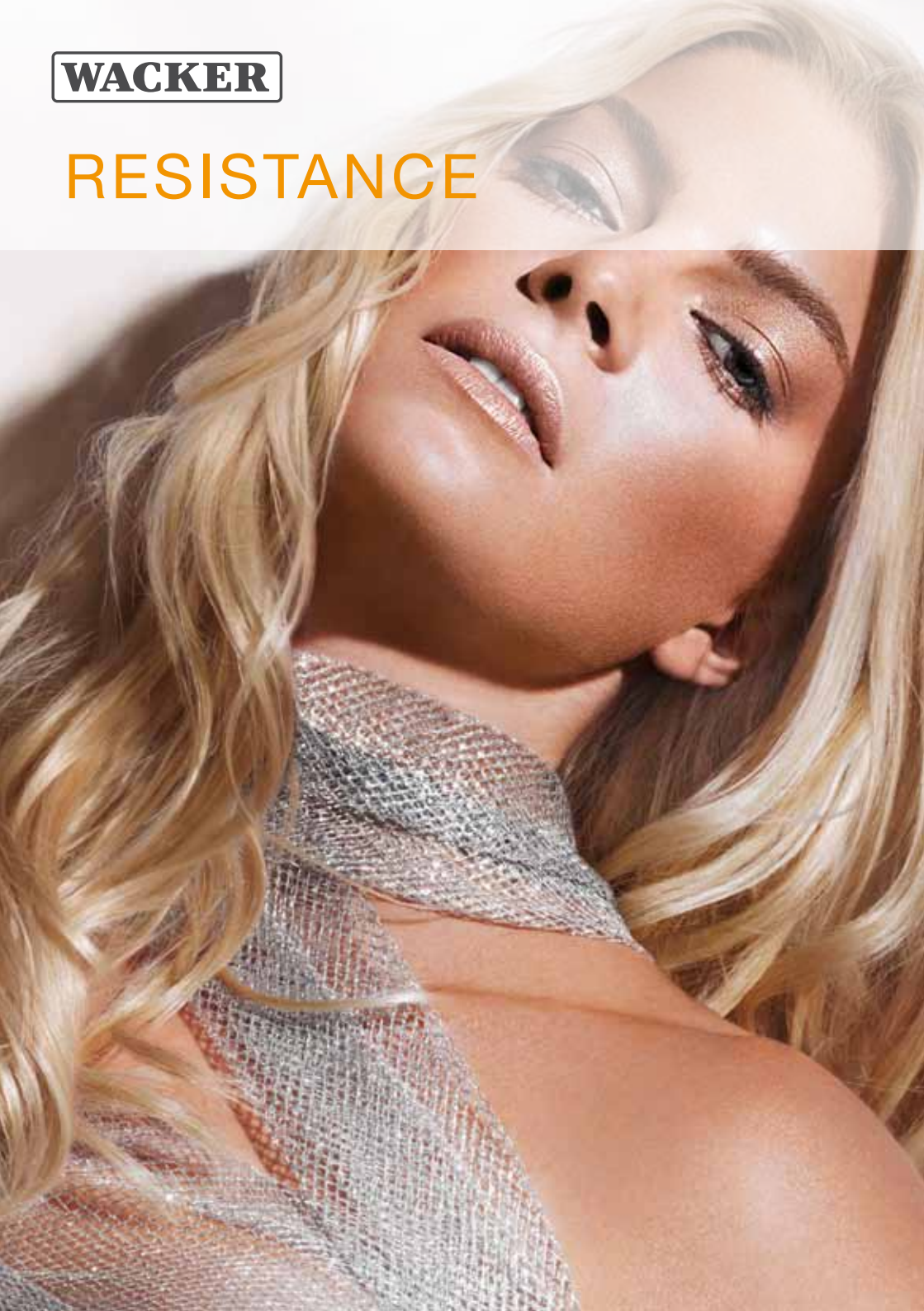
**BELSIL®**

PERSONAL CARE | BELSIL®

**SPECIAL EFFECTS** FOR BEAUTY CARE  
WITH WACKER SILICONE SOLUTIONS

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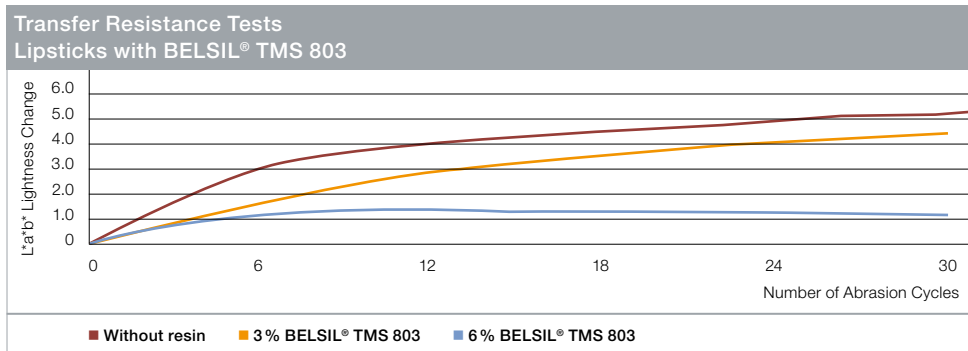
RESISTANCE



## CREATE LONG-LASTING EFFECTS

Seductive lips, reliable sun protection, perfect make-up: cosmetic products and sun creams are expected to retain their desired effects for as long as possible. Thanks to their film-forming properties, silicone resins and silicone resin gels help cosmetics to retain their correct functioning, regardless of whether you need water-resistant UV protection, gloss, color intensity or the prevention of moisture loss. BELSIL® TMS 803:

- Makes lipsticks resistant to oily salad dressing
- Gives sun creams enhanced water resistance, and
- Reduces pigment transfer in decorative cosmetics



Lipsticks are a perfect example of how WACKER silicones achieve long-lasting effects.

### Selected products:

- BELSIL® RG 90, INCI: Isododecane and Vinyltrimethylsiloxydimethylsiloxane Crosspolymer
- BELSIL® SPR 45 VP, INCI: Polyphenylsilsesquioxane
- BELSIL® TMS 803, INCI: Trimethylsiloxysilicate
- BELSIL® REG 102, INCI: Cyclopentasiloxane, Dimethicone/Vinyltrimethylsiloxydimethylsiloxane Crosspolymer
- BELSIL® REG 1100, INCI: Dimethicone, Vinyltrimethylsiloxydimethylsiloxane Crosspolymer

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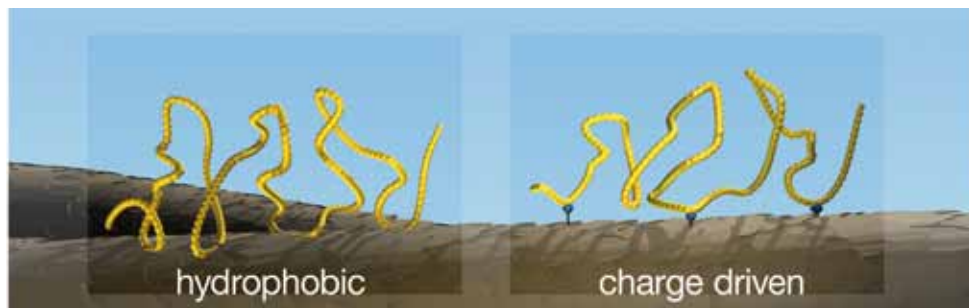
SMOOTHNESS



# MAKE IT SOFT AND SMOOTH TO THE TOUCH

High-quality hair-care and skin-care products not only show good spreadability, but have a pleasant feel, too. BELSIL® silicones spread evenly and form a continuous thin film. Skin or hair feels soft and silky smooth.

- BELSIL® dimethicones and amodimethicones are ideal for giving hair a soft touch and for enhancing the distribution of shampoo over hair.
- BELSIL® silicone waxes with a low melting point permit the formulation of easy-to-spread emulsions that confer a delicate, soft sensation on skin.



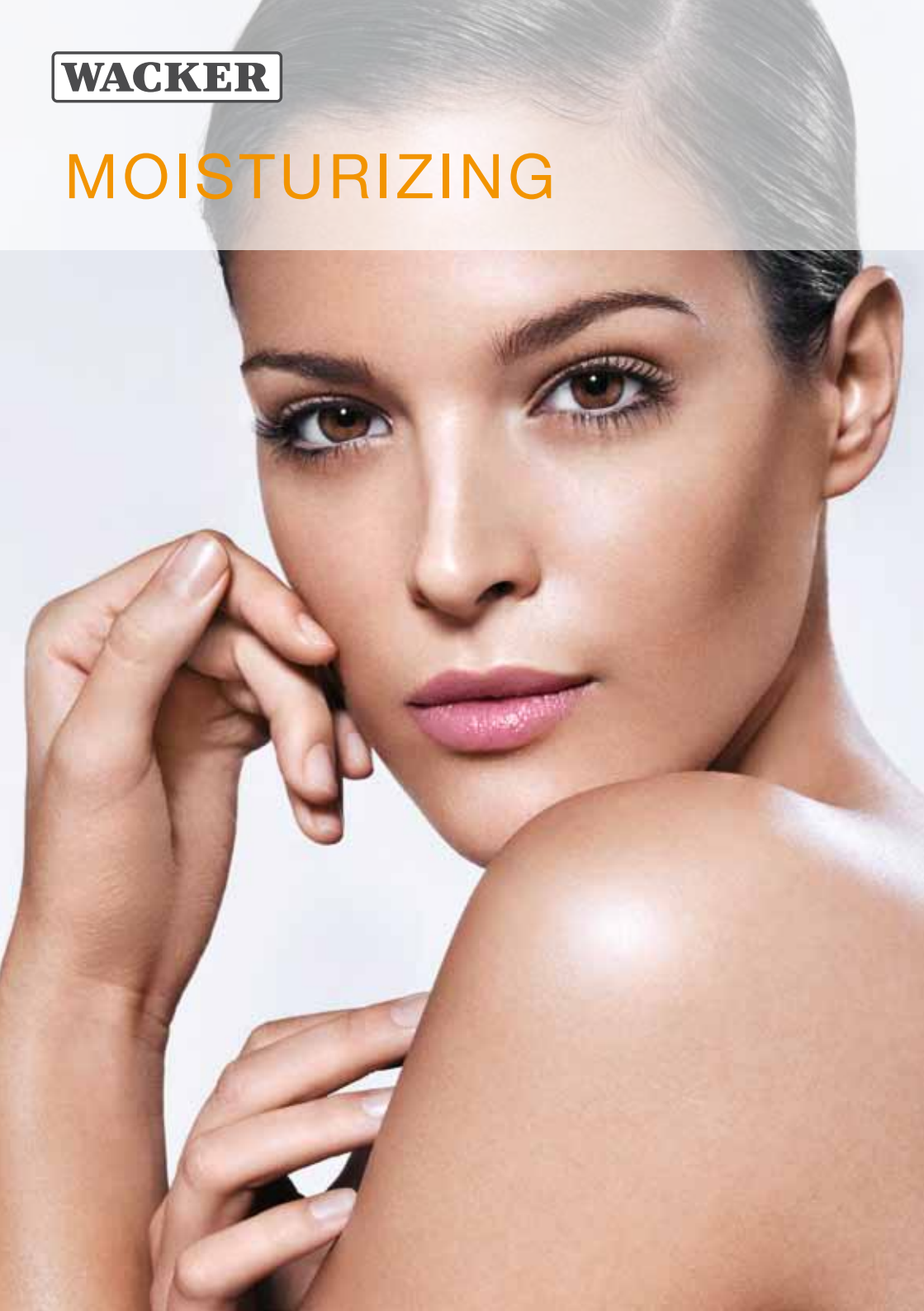
Highly flexible silicone loops impart a pleasantly soft and silky-smooth feel to hair and skin.

## Selected products:

- Hair care: BELSIL®
  - ADM 6102 E, INCI: Amodimethicone, Trideceth-10
  - ADM 8301 E, INCI: Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-5, Glycerin
  - ADM 6300 E, INCI: Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-10
  - ADM 9000 E, INCI: Amodimethicone, Trideceth-12, Cetrimonium Chloride
  - DM 3560 VP, INCI: Dimethiconol, Sodium Dodecylbenzenesulfonate, Trideceth-10
  - DM 5700 E, INCI (proposal): Dimethicone, Caprylyl/Capryl Glucoside
- Skin care: BELSIL®
  - DM 5 and DM 10, INCI: Dimethicone
  - PDM 20, INCI: Trimethylsiloxyphenyl Dimethicone
  - EG1, INCI: Cyclopentasiloxane, Dimethicone/Vinyl Dimethicone Crosspolymer
  - REG 102, INCI: Cyclopentasiloxane, Dimethicone/Vinyltrimethylsiloxylicicate Crosspolymer

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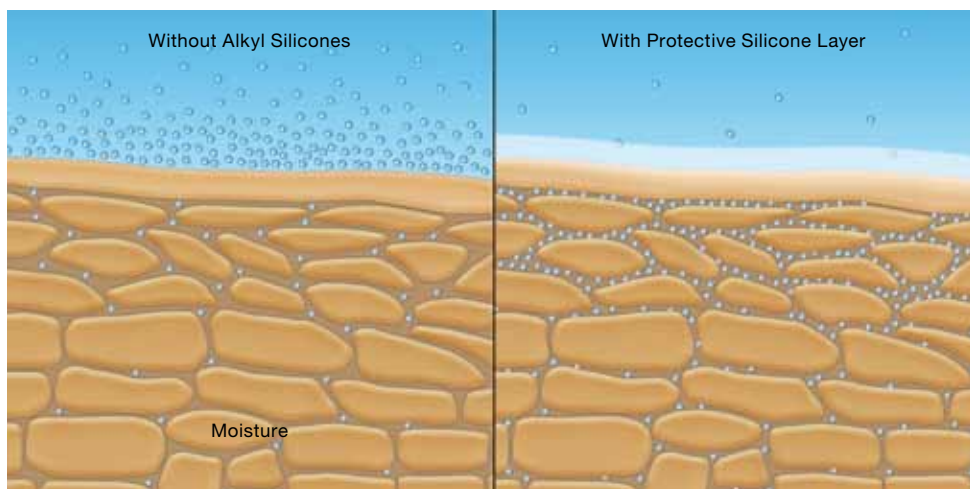
MOISTURIZING



## ENSURE THE RIGHT BALANCE

High-melting, alkyl-modified silicones from the BELSIL® range form a protective, moisturizing film on the skin. This gives body-care products a silky feel and helps retain the skin's natural moisture. What's more, the effect is long-lasting.

- Selected BELSIL® silicones reduce transepidermal water loss and keep skin soft and supple.
- A typical example would be an after-sun body lotion.



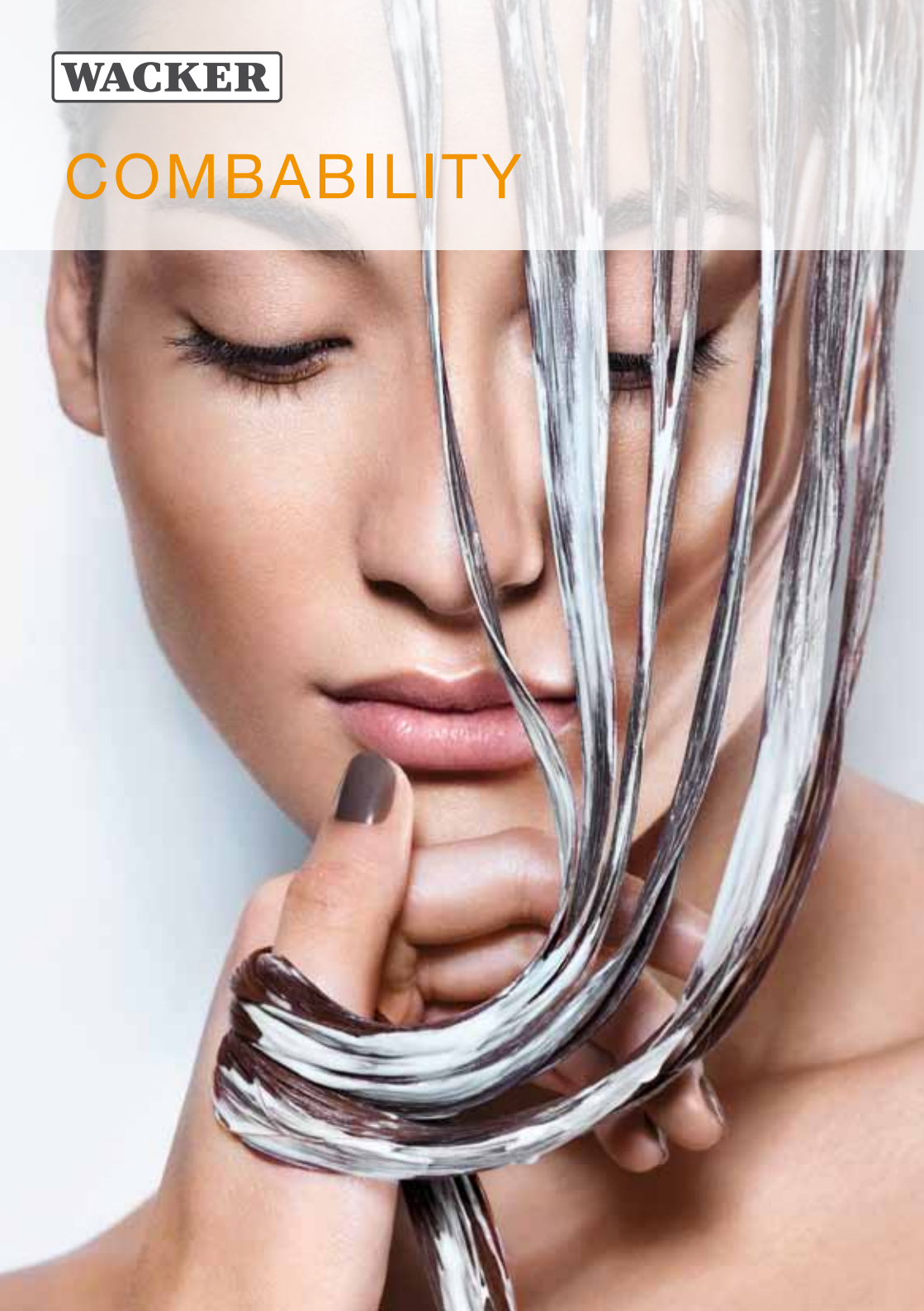
Film-forming mechanism of silicone-based skin-care products.

### Selected products:

- BELSIL® CM 7026 VP, INCI: C26-28 Alkyl Methicone

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COMBABILITY

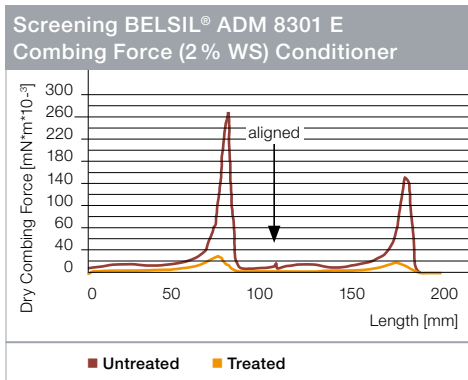




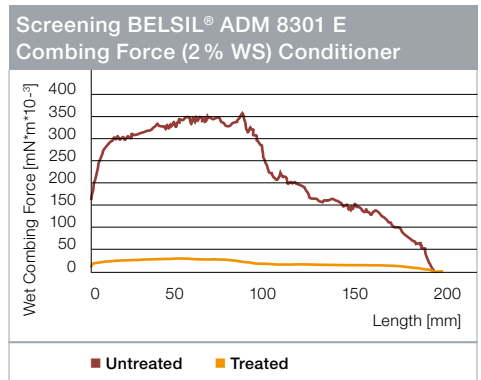
## REDUCE COMBING FORCE

All hair is subject to stress – whether from combing, styling or environmental influences. Mechanical stress is challenging for long hair in particular. Luckily, even a tiny amount of silicone in hair-care products improves the combability of both wet and dry hair.

- BELSIL® DM and ADM silicones reduce friction between hairs by up to 78 % in shampoo.
- Very flexible polysiloxane chains provide a pleasant, silky feel and help the comb glide effortlessly through the hair.



Dry combing force of a rinse conditioner.



Wet combing force of a rinse conditioner.

### Selected products:

- BELSIL® ADM 9000 E, INCI: Amodimethicone, Trideceth-12, Cetrimonium Chloride
- BELSIL® ADM 6102 E, INCI: Amodimethicone, Trideceth-10
- BELSIL® ADM 6300 E, INCI: Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-10
- BELSIL® ADM 8301 E, INCI: Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-5, Glycerin
- BELSIL® DM 6010, INCI: Dimethiconol, TEA-Dodecylbenzenesulfonate
- BELSIL® DM 60000 – DM 500000, INCI: Dimethicone
- BELSIL® DM 3560 VP, INCI: Dimethiconol, Sodium Dodecylbenzenesulfonate, Trideceth-10
- BELSIL® DM 5700 E, INCI (proposal): Dimethicone, Caprylyl/Capryl Glucoside
- BELSIL® DM 6101 E, INCI: Dimethicone, Trideceth-5

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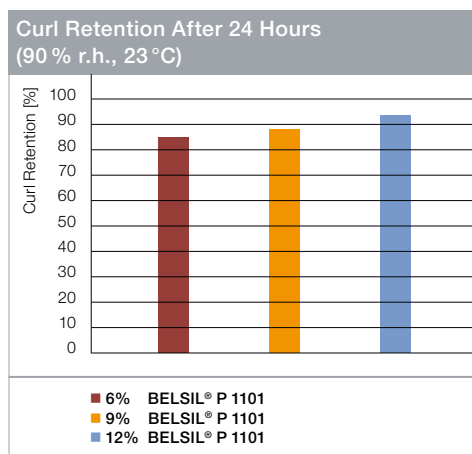
**HOLD**



## HIGHLIGHT FIRM HOLD WITH SOFT TOUCH

Modern hair spray, mousses and balms provide a firm hold but leave hair soft and looking natural. This is achieved by BELSIL® P 1101, containing an innovative hybrid silicone polymer whose novel structure combines flexible silicone blocks and organic polymer blocks. The user-friendly polymer solution BELSIL® P 1101 shows in aerosol spray formulations:

- Excellent flexibility and elasticity
- High curl retention
- Short drying times
- Excellent soft touch before and after combing



### Selected products:

- BELSIL® P 1101, INCI: Alcohol, Crotonic Acid/Vinyl C8-12 Isoalkyl Esters/VA/Bis-Vinyldimethicone Crosspolymer

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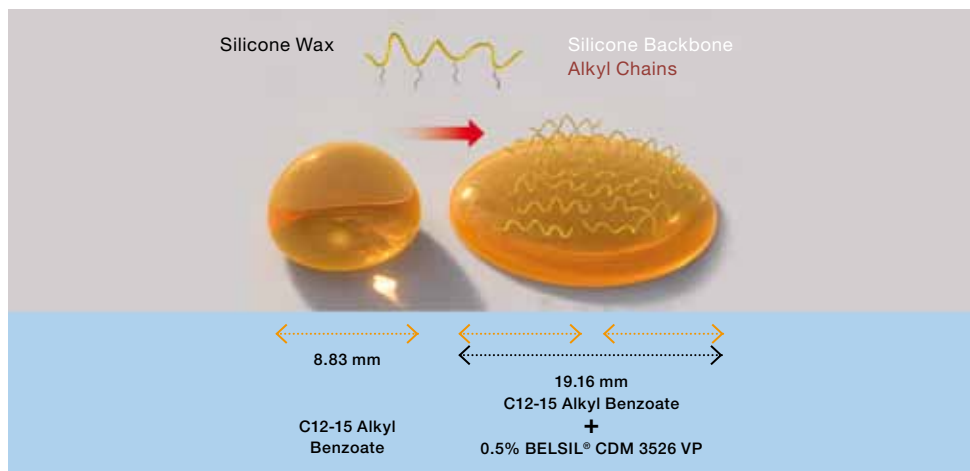
SPREADABILITY



## OPTIMIZE DISTRIBUTION

A good product should feel pleasant as soon as it makes contact with the skin or hair. Owing to their low surface tension, low-viscosity dimethicones and special alkyl-functional silicones not only improve the spreadability of cosmetic oils, pigments and UV absorbers, they also impart a pleasant silky skin sensation.

### Mechanism of Improved Oil Spreading with Silicone Waxes



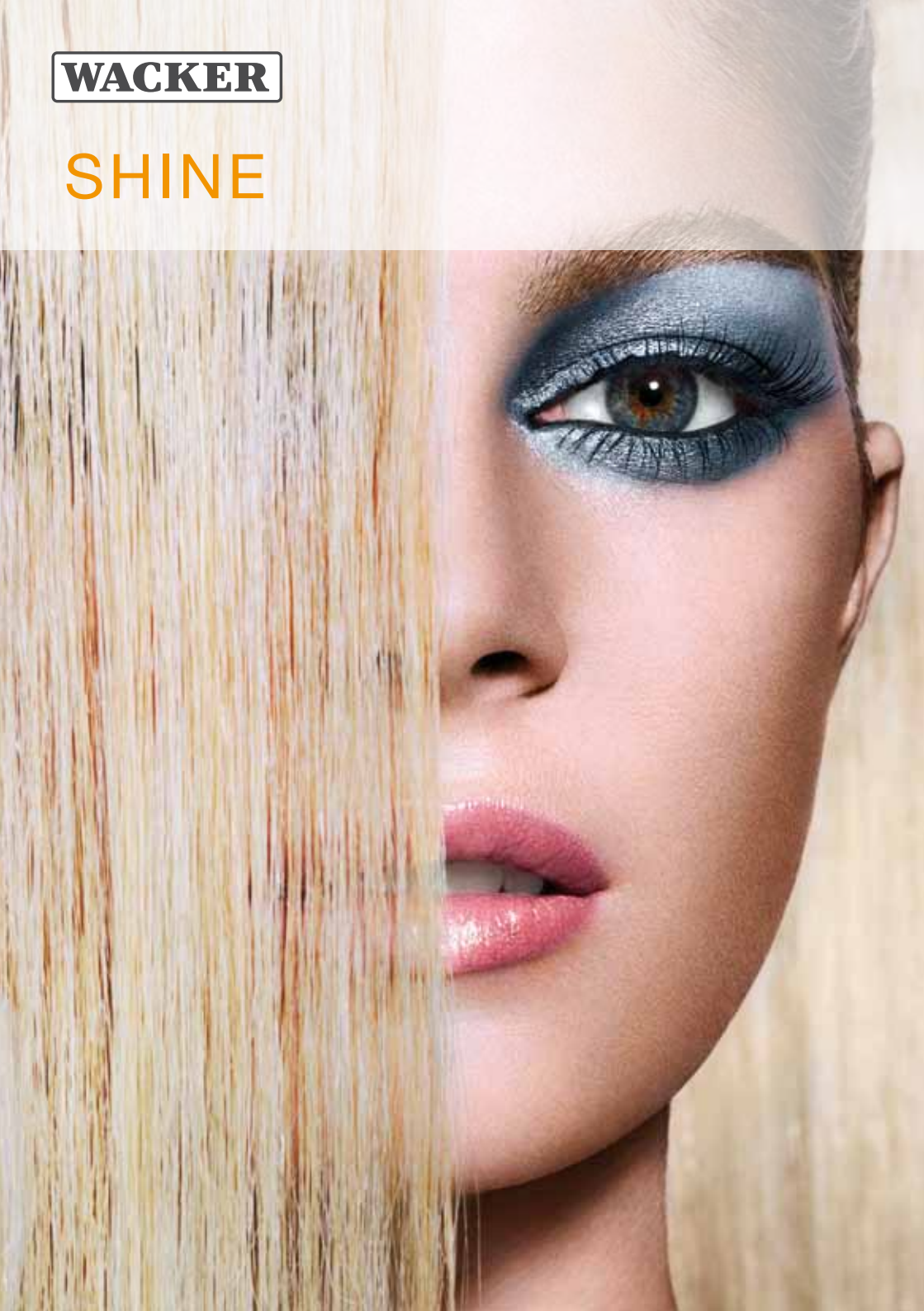
Improved spreading makes these products excellent formulation ingredients, ideal for skin-care and color-cosmetics applications. A main example would be sunscreen products. Here, the improved spreading allows a more even distribution of sun-filter agents, leading to an increased sunscreen factor.

#### Selected products:

- BELSIL® DM 5, DM 10, INCI: Dimethicone
- BELSIL® CDM 3526 VP, INCI: C26-28 Alkyl Dimethicone

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SHINE



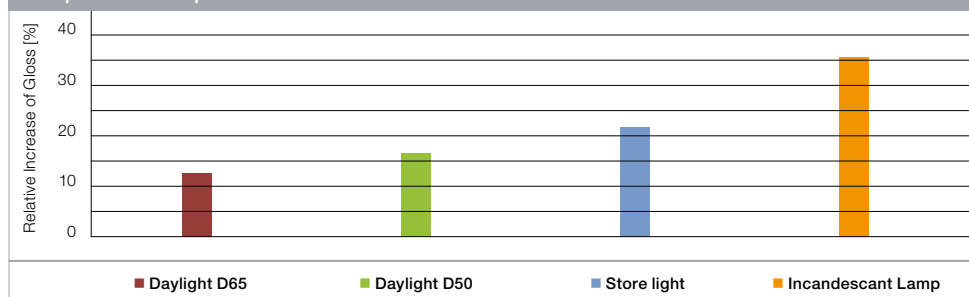
## FORMULATE TANTALIZING REFLECTIONS

Long-lasting shine is the secret to attractive hair, nails and lips. Only reflective surfaces, whether glossy or matt, can shine. Silicone additives in personal-care products optimize shine and intensify color brilliance because they cover hair and lips with a thin film and create a smooth surface. Silicones with a high refractive index enhance shine.

BELSIL® P 1101 keeps your nail polish film in perfect shape and helps retain gloss and shine.

- Silicones are the ideal additive for glossy, kiss-proof lipstick.

**BELSIL® SPR 45 VP Offers Shine and Long-Lasting Properties.**  
Comparison of Lipstick with and without Silicone Resin.



### Selected products:

- BELSIL® PDM 1000 ( $n_D^{25}$ : film 1.461)  
INCI: Trimethylsiloxyphenyl Dimethicone
- BELSIL® SPR 45 VP ( $n_D^{25}$ : 1.569)  
INCI: Polyphenylsilsesquioxane
- BELSIL® P 1101  
INCI: Alcohol, Crotonic Acid/Vinyl C8-12 Isoalkyl Esters/VA/  
Bis-Vinyldimethicone Crosspolymer

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TACKINESS



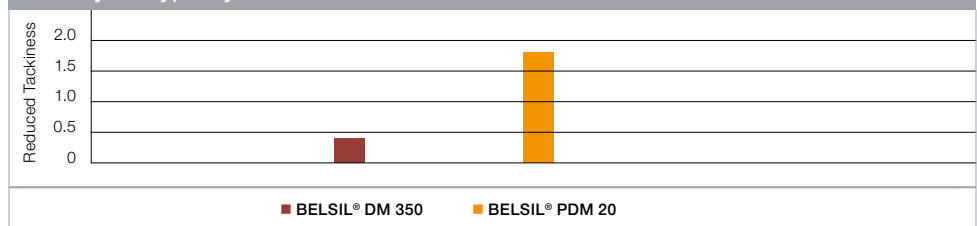


## REDUCE TACKINESS

Consumers want body-care products that are simple to use and leave their skin feeling pleasant and moisturized. What they don't want is tackiness, which is hardly ever desirable in a cosmetic product. Usually it is something to be avoided, or reduced. Silicones can reduce tackiness – yielding cosmetics with a pleasant feel. Low-viscosity dimethicones and phenyl-modified fluids can be used here. For long-lasting formulations, silicone resin elastomer gels are the answer.

BELSIL® P 1101 is an ethanolic solution of an excellent hair-styling polymer that combines strong hold and softness with a rapid drying time - perceived as low tackiness when the product is applied.

Comparison of Tackiness of a Skin Care Cream Containing Dimethicone and Trimethylsiloxyphenyl Dimethicone



Low-viscosity silicones (e.g. BELSIL® DM 350) reduce tackiness. Even better performance can be obtained with phenyl-modified silicones (e.g. BELSIL® PDM 20).

### Selected products:

- BELSIL® DM 5, DM 10, DM 50, DM 100, DM 350, INCI: Dimethicone
- BELSIL® PDM 20, PDM 1000, INCI: Trimethylsiloxyphenyl Dimethicone
- BELSIL® EG1, INCI: Cyclopentasiloxane, Dimethicone/Vinyl Dimethicone Crosspolymer
- BELSIL® REG 102, INCI: Cyclopentasiloxane, Dimethicone/Vinyltrimethylsiloxy silicate Crosspolymer
- BELSIL® REG 1100, INCI: Dimethicone, Vinyl dimethyl/Trimethylsiloxy silicate/Dimethicone Crosspolymer
- BELSIL® P 1101, INCI: Alcohol, Crotonic Acid/Vinyl C8-12 Isoalkyl Esters/VA/Bis-Vinyl dimethicone Crosspolymer

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THIXOTROPY

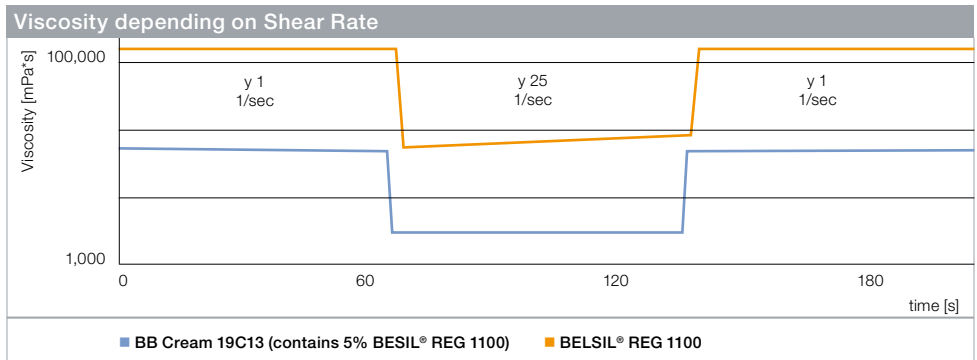


## IMPROVE CONSISTENCY

Successful cosmetic products need both effective active ingredients and a suitable carrier, such as a cream or lotion. The carrier's consistency will determine not only a cosmetic's properties on the skin or hair, but will also show whether a product offers a certain richness or lightness. Its shelf life will be prolonged, too. A product's rheological profile can be adjusted with WACKER silicones. Creams and lotions require a certain viscosity for their care effects to be rendered visible, while ensuring suitable consistency.

At the same time, a cosmetic will need a low viscosity during application. The following products are used to adjust such thixotropic behavior.

- HDK® pyrogenic silicas with a variety of polarities for different solvents
- Elastomer gels such as BELSIL® EG 1, EG 2, RG 100, RG 90, REG 102 and REG 1100



### Selected products:

- BELSIL® EG 1, EG 2, INCI: Cyclopentasiloxane, Dimethicone/Vinyl Dimethicone Crosspolymer
- BELSIL® RG 100, INCI: Cyclopentasiloxane, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer
- BELSIL® RG 90, INCI: Isododecane (and) Vinyl dimethyl/Trimethylsiloxysilicate Stearyl Dimethicone Crosspolymer
- BELSIL® REG 102, INCI: Cyclopentasiloxane, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer
- BELSIL® REG 1100, INCI: Dimethicone, Vinyl dimethyl/Trimethylsiloxysilicate/Dimethicone Crosspolymer
- HDK® N 20 and HDK® T 30, INCI: Silica
- HDK® H 15 and HDK® H 30, INCI: Silica Dimethyl Silylate
- HDK® H 2000, INCI: Silica Silylate

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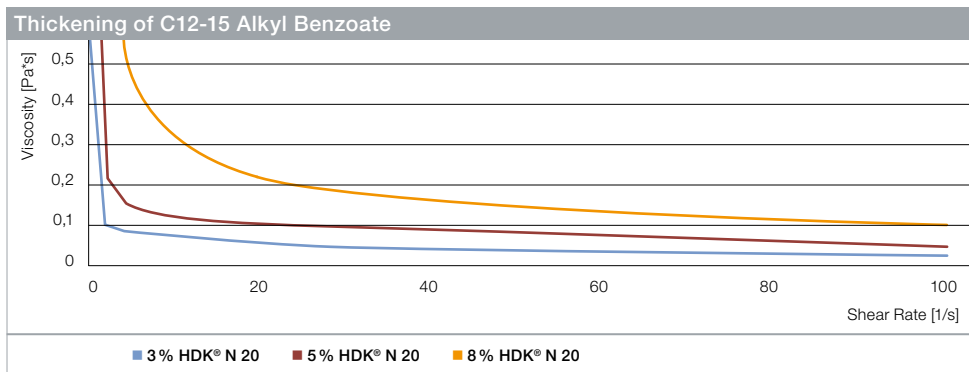
THICKENING



## CREATE THE RIGHT TEXTURE

One of the key challenges facing cosmetic formulators is to give a cosmetic product the right texture and consistency. From how a product looks when first opened to how it feels when applied on the skin, the texture of a skin-care product is vital to its market acceptance. Wherever formulations need thickening, or lotions and creams need viscosity control, you can rely on WACKER silicones and silicas to deliver the desired effects.

- HDK® pyrogenic silicas are available in various polarities and make it possible to fine-tune a formulation's viscosity.
- Silicone waxes such as BELSIL® CM 7026 VP are structural components providing the right balance between beneficial sensory parameters and thickening of the formulation.



Depending on the polarity of a formulation, different HDK® pyrogenic silica grades enable the required thickening effect to be adjusted.

### Selected products:

- BELSIL® CM 7026 VP, INCI: C26-28 Alkyl Methicone
- BELSIL® W 3230, INCI: Bis-Stearoxydimethylsilane, Stearyl Alcohol, Dimethicone
- HDK® N 20 and HDK® T 30, INCI: Silica
- HDK® H 15 and HDK® H 30, INCI: Silica Dimethyl Silylate
- HDK® H 2000, INCI: Silica Silylate

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ANTI-AGING



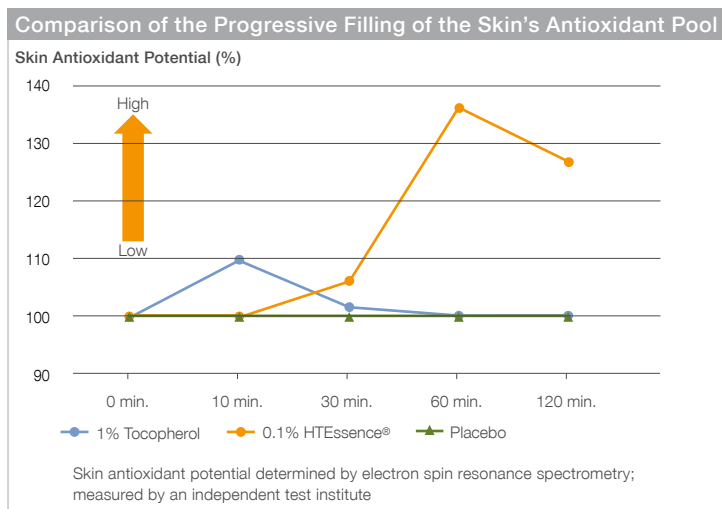
## DISCOVER THE SECRET OF BEAUTY

What's the secret of beautiful, silky-smooth firm skin? Active ingredients such as retinol, which prevent wrinkles and help skin regenerate. For the first time, it's possible to reliably protect these agents from oxygen, light and heat. Encapsulated in CAVAMAX® cyclodextrin complexes, they have led to the development of a new generation of care products.

- CAVAMAX® provides anti-aging components with long-lasting protection against oxidation and evaporation.
- Thanks to their molecular encapsulation within a cavity, these components are gradually released on the skin.

Premature aging is also caused by free radicals. These by-products of cell metabolism attack cell membranes, and our skin loses elasticity, for example. Antioxidants such as hydroxytyrosol provide protection against the effects of damaging free radicals on the cells in your body, including the skin. Hydroxytyrosol is considered one of the most powerful antioxidants.

- HTEssence® is the first nature-identical, highly pure hydroxytyrosol.
- HTEssence® fills up the skin's antioxidant pool more effectively and for longer than other antioxidants.



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SKIN LIGHTENING



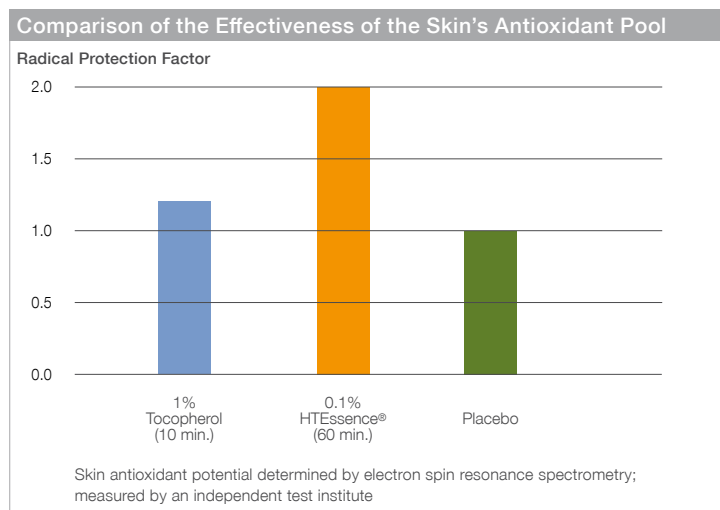


## LIGHTEN THE SKIN'S PIGMENTATION

There is a growing demand for skin lightening products. As an antioxidant, hydroxytyrosol has been shown to effectively increase glutathione levels within the cells. It is known that high glutathione levels are associated with increased production of pheomelanin, which leads to a light pigmentation of the skin. At the same time, the production of the dark pigment eumelanin is reduced. HTEssence® is the first nature-identical, highly pure hydroxytyrosol.

Hydroxytyrosol is considered one of the most powerful antioxidants:

- Taken as a supplement, it can help to raise glutathione levels, leading to a lighter skin pigmentation and the lightening of dark spots on the skin.
- HTEssence® protects the skin against UV-induced radicals more effectively and for longer than other antioxidants.



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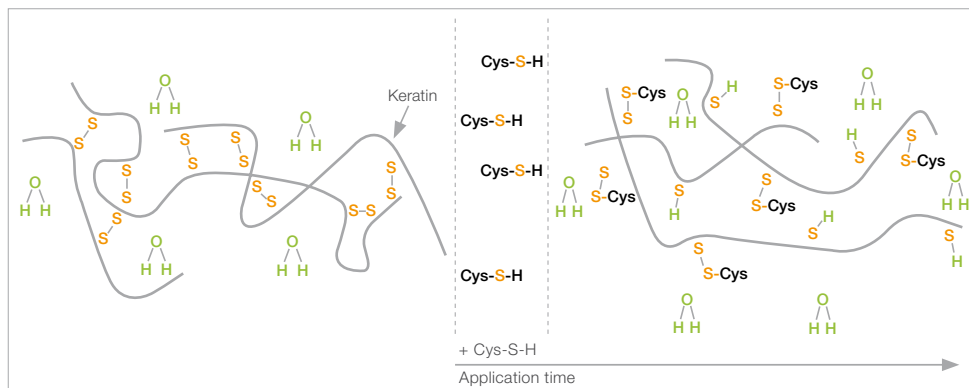
GENTLENESS



## PERM HAIR THE GENTLE WAY

Natural curls full of bounce and stability need a uniform hair structure in which disulfide bonds play a key role. When hair is permed, its disulfide bonds or bridges are broken and remade. If the perming agent is too aggressive, the hair structure is damaged. That's where cysteine comes in. Fewer disulfide bridges are broken when cysteine is used instead of the usual thioglycolic acid. And the resulting curls are just as tight and stable.

- L-cysteine is one of the 20 natural amino acids. Apart from methionine, it is the only one that contains sulfur.
- When cysteine is used to perm hair, fewer disulfide bridges are broken.
- Cysteine-based perming agents have a pleasant, non-pungent smell.
- WACKER is the only manufacturer worldwide to produce highly pure cysteine by the fermentation of vegetarian-grade raw materials.



When hair is permed, its disulfide bonds or bridges are broken and remade.

**WACKER**

STABILIZATION



# ENCAPSULATE SENSITIVE INGREDIENTS

Organic agents fulfill important functions in skin and hair care. But they are often sensitive to oxygen, light and heat, and can rapidly evaporate. Innovative cyclodextrin complexes offer them protection. Moisture unlocks these tiny “strongboxes” and gradually releases organic agents – providing skin and hair products with new functions.

- CAVAMAX® forms cyclodextrin complexes that work like tiny strongboxes.
- CAVAMAX® provides long-lasting protection against oxidation and evaporation.
- CAVAMAX® enables skin-care and hair-care products to gradually release organic agents with anti-wrinkle, skin-regeneration and moisturizing effects.
- WACKER is the only company to manufacture all three natural cyclodextrins –  $\alpha$ ,  $\beta$  and  $\gamma$ .
- WACKER supplies ready-to-use cyclodextrin complexes.

For example: CAVAMAX® W 8/retinol complex and CAVAMAX® W 8/tocopherol complex.



**WACKER**

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