

WACKER

CREATING TOMORROW'S SOLUTIONS



BELSIL®

PERSONAL CARE | BELSIL®

**SIMPLY BEAUTIFUL: SPECIAL EFFECTS
FOR THE COSMETICS INDUSTRY**



HAIRCARE **EFFECTS**

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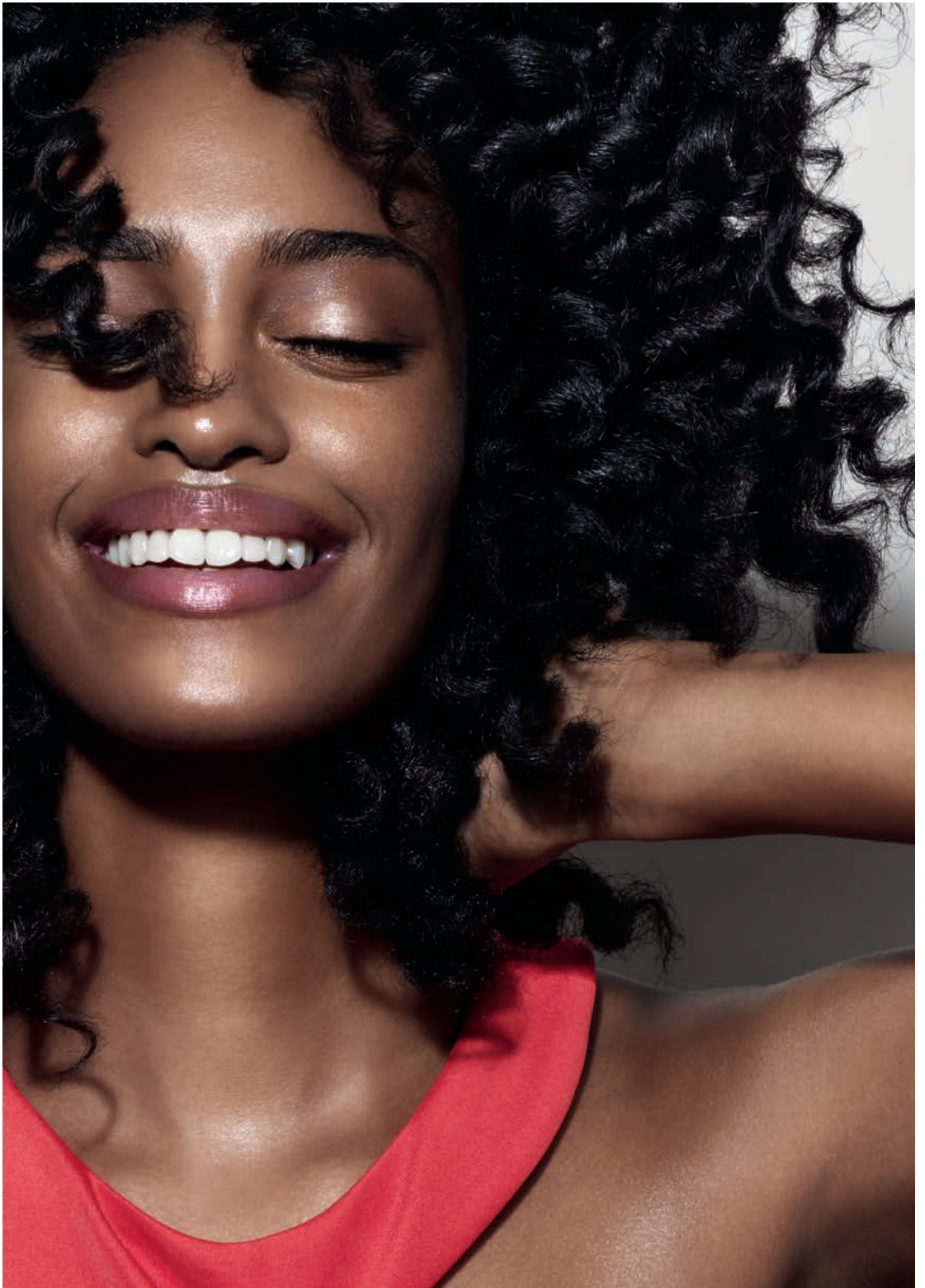
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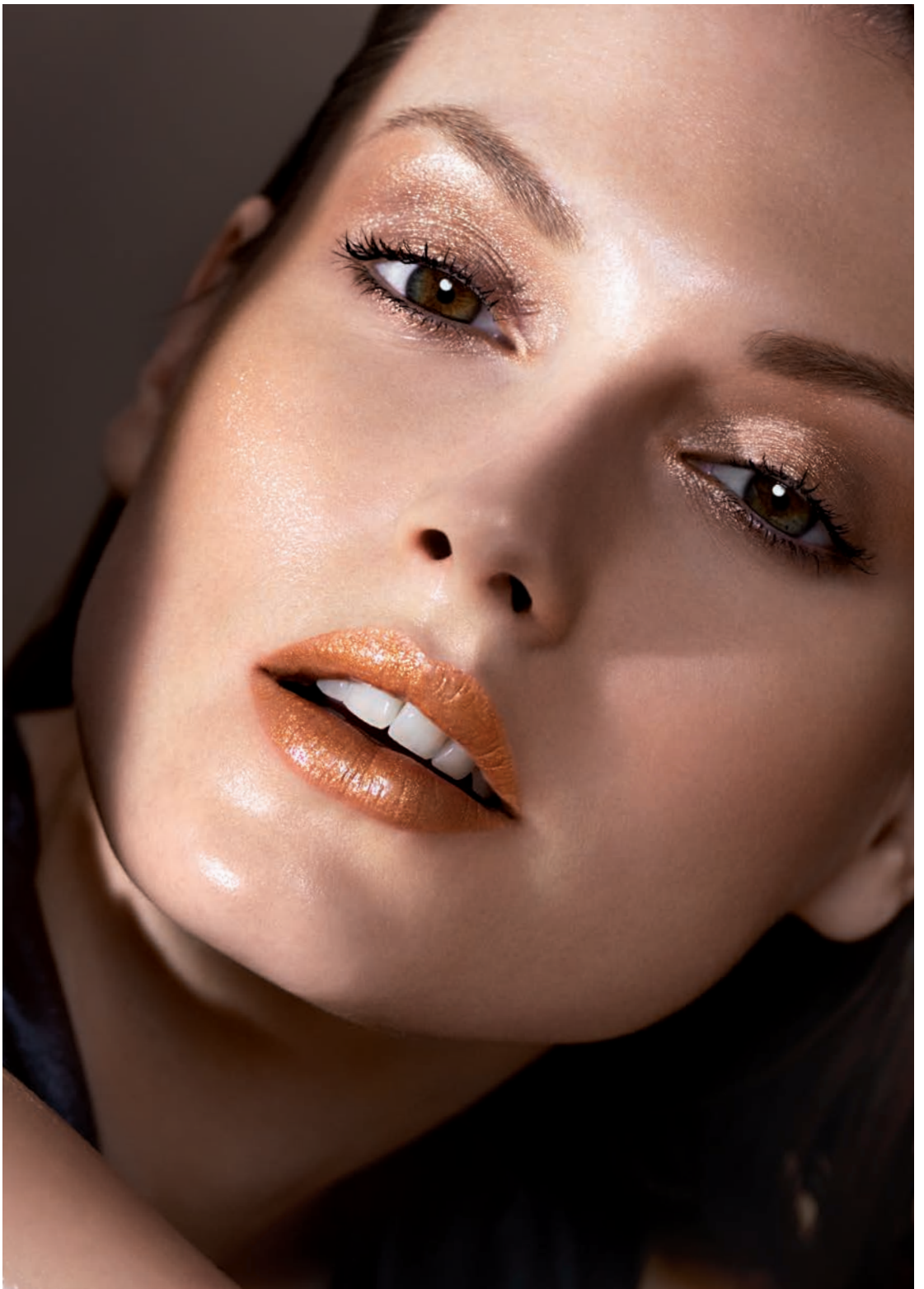
SILICONES AS BEAUTY SPECIALISTS: TAKE THE EASY WAY

Silicones are genuine beauty specialists. At all levels. They help with personal care, beautify skin and hair, and even make the cosmetic product itself more attractive. For example, they confer smoothness on creams and prevent stickiness in oils. In shampoos, they make hair softer and easier to comb. Silicones also improve the spreadability of natural oils, thus making it easier to spread emulsions on the skin. The uniquely soft feel that silicones confer on skin and hair is well known, and explains why they have been used in most successful products for a long time. A further benefit is that the diverse effects are often obtained with just a small addition of silicone. Provided it was engineered with the necessary expertise.

WACKER, one of the world's largest, most experienced silicone producers, offers you precisely this expertise. We help you make easy use of the potential residing in silicones – to improve existing products or develop new ones.

HOW TO MAKE THE BEST USE OF THE “ATTRACTIVITY” PRINCIPLE

Attractivity is a question of chemistry, not only in the literal sense. After all, “attractive forces” form the basis of all kinds of chemistry. Who could know more about this than a chemist? Probably only someone who is also familiar with the cosmetics and care-product market. At WACKER, you will find precisely such specialists. As competent business partners, they focus not only on molecules but also on markets. And their innovative solutions rate just as well in the lab as in the cost-benefit analysis.





Competitive Edge through R&D

Innovations drive the cosmetics industry. With annual R&D expenditure averaging 3 % of sales, WACKER ranks among the chemical industry's most research-intensive companies. Over 5,000 patents, including key ones for the cosmetics industry, prove that WACKER plays an active part in developing new technologies, products and markets. Of course, we also enter into confidential development partnerships.

Ready-to-Use Formulations

With a current portfolio in excess of 3,000 silicone products, WACKER is among the world's leading manufacturers of silanes and silicones. This impressive product range is backed up by comprehensive applications experience, which we make available to customers around the globe. We test all kinds of formulations in WACKER applications labs and perform the necessary research for you to perfect your products and reduce time-to-market.

Strength through Synergies

WACKER offers products and know-how from two branches of chemistry that are important for the cosmetics industry: inorganic and organic. This results in numerous synergies that benefit customers. Innovative new hair-styling products, such as our BELSIL® P 1101, are just one example.

This silicone polyvinyl acetate copolymer is a hybrid material that combines the advantages of silicone chemistry and organic chemistry. The organic polyvinyl acetate block ensures fixation whereas the silicone block offers elastic behavior and a smooth, silky hair feel. Another advantage is evident in the formulations: WACKER specialists know all about the different chemistries involved and can therefore save you time-consuming tests.







FOR SHAMPOOS WITH GENUINE ADVANTAGES

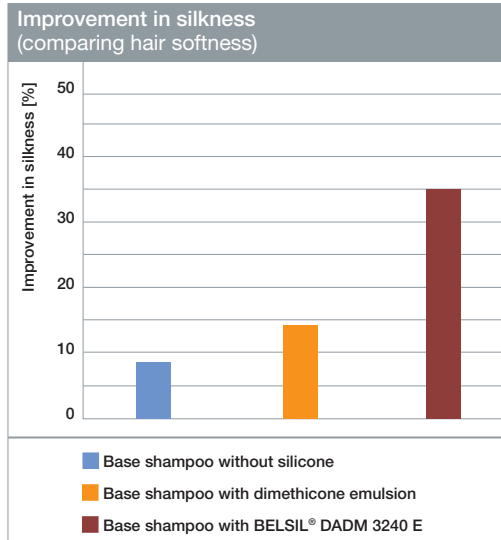
Consumers judge shampoos initially by the “washing experience”. What feels good, must be good. Silicones from WACKER present you with numerous opportunities to modify formulations in such a way that washing alone is a sensual experience. Not only that, with WACKER products and know-how, you can impart additional effects to shampoos that can be detected in wet and dry hair.

You can choose between different hair care technologies and emulsion particle sizes to optimize the affinity of conditioning ingredients to hair – so that every hair type gets the best possible care.



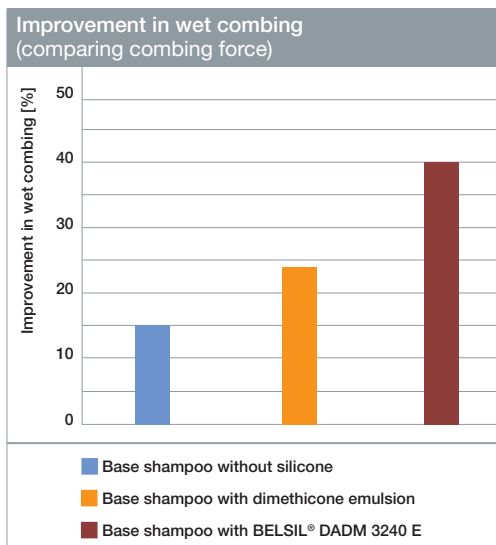


Comparing hair softness. Hair tresses treated with a shampoo formulated with BELSIL® DADM 3240 E (INCI: Dimethicone, Bis-Hydroxy/Methoxy/Methyl Amodimethicone Crosspolymer, Trideceth-10) improve the silkiness of damaged hair by more than twice as much as shampoos containing conventional dimethicone emulsions.



Effect 1: A New Dimension in Silkiness

Silicones give dry hair a silky soft feel that hardly any other additive can match. As a silicones specialist, WACKER offers a wide range of products for different types of hair. In BELSIL® DADM 3240 E, WACKER has developed a novel silicone co-emulsion that makes bad hair days a thing of the past. Even damaged hair becomes very silky, shiny and easy to arrange.



Improvement of wet combing with BELSIL® DADM 3240 E (INCI: Dimethicone, Bis-Hydroxy/Methoxy/Methyl Amodimethicone Crosspolymer, Trideceth-10) by 40%.

Effect 2: Better combability

Silicone emulsions from WACKER make both wet and dry hair easier to comb. A sulfate-free shampoo containing 0.8% active concentration of the emulsion BELSIL® DADM 3240 E – including a unique crosspolymer which is particularly effective in enveloping the hair - lowers the wet combing force by 40%. Dimethicone based emulsions BELSIL® DM 5102 E (Dimethicone, Laureth-4, Laureth-23) or BELSIL® DM 5700 E (Dimethicone, Caprylyl/Capryl Glucoside, Sorbitan Laurate) are available and have proven to ease combing in many formulations.

Effect 3: Less flyaway hair

Amino-functional silicones like BELSIL® ADM 6300 E (INCI: Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-10) or Polyether-functional silicones like BELSIL® PF 200 (INCI: PEG/PPG-20/20 Phenylisopropyl Caprylyl Dimethicone) reduce electrostatic charging of the hair surface and so reduce flyaway.

FOR CONDITIONERS WITH “WOW” EFFECT

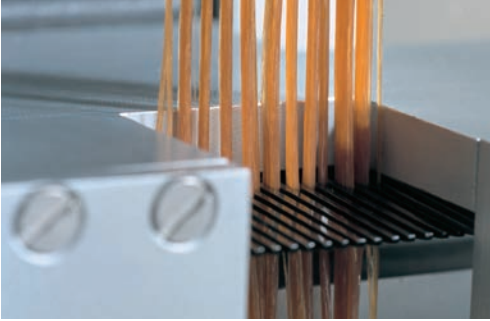
Lank hair needs additional care. BELSIL® dimethicones, dimethiconols, amino-functional silicones and silicone specialties turn your conditioners into caring professionals. BELSIL® silicones are available in a great variety of functionalities, viscosities and delivery forms and help you to develop highly specific conditioners with finely balanced effects.

At the same time, they easily master the challenges posed by conditioners, masks and other treatments. In conditioners, they protect the hair fibers and add a silky soft touch to the hair. In leave-on products, they are kind on the scalp and hair, and in special formulations, they help to protect hair against heat and support color protection.





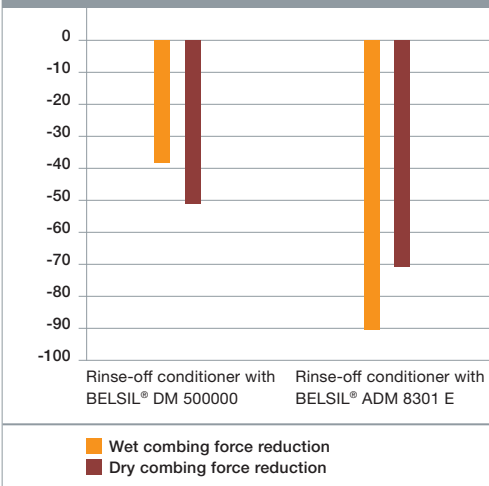
Measuring combing force of wet hair in the lab.



Rinsing a treated hair swatch.

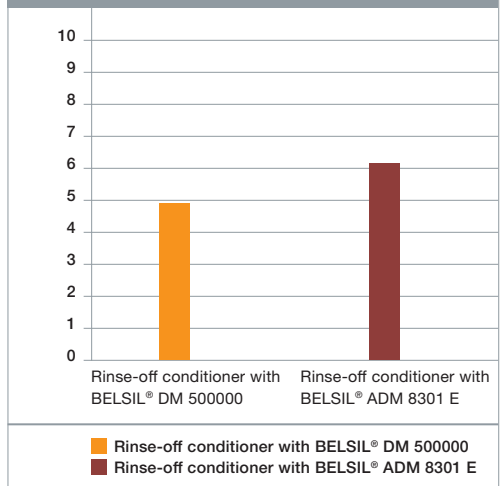


Combing force reduction
with BELSIL® conditioners [%]



Treatment of damaged hair with rinse-off conditioner containing dimethicones like BELSIL® DM 500000 show high combing force reduction. Tailor-made amino-functional silicone emulsion ADM 8301 E leads to a significant performance improvement.

Excellent softness
with BELSIL® conditioners on damaged hair



Soft and silky feel – silicone ingredients improve clearly haptic properties. High viscose dimethicones like BELSIL® DM 500000 show good results, high end performance is offered from amino-functional silicones like BELSIL® ADM 8301 E.

Shine box test.



Color protection
with BELSIL® conditioners



Improvement of color retention of red colored hair treated with a conditioner containing film forming amino-functional silicone microemulsion BELSIL® ADM 8301 E or macroemulsion BELSIL® ADM 6300 E versus a reference conditioner without silicone.

Effect 1: Silky feel

The popular soft touch of silicones can be created with dimethicones, dimethiconols, amino-functional silicones and silicone specialties from WACKER.

These are readily and efficiently formulated into conditioners. The products are available in the form of emulsions, fluids and gum blends.

Effect 2: Better combability

Conditioners containing high-viscosity dimethicones and dimethiconols make combing much easier. The best result is obtained with amodimethicone emulsions like BELSIL® ADM 8301 E (INCI: Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer; Trideceth-5, Glycerin) or BELSIL® ADM 6102 E (Amodimethicone, Trideceth-10), two excellent additives to ease combing of dry and wet hair, especially when hair is damaged.

Effect 3: Color and thermo protection

Prevention of color fade and reduction of moisture loss are key functions of conditioners for colored healthy hair. The innovative film forming amodimethicone architecture of BELSIL® ADM 8301 E (microemulsion) and BELSIL® ADM 6300 E (macroemulsion) modify beneficially the hair surface without compromising on natural silky feel and excellent conditioning properties.

Effect 4: Shine and luminosity

Extra shine is a key sales argument for conditioners. Silicones help to give a smooth reflecting surface and increase shine. In addition, phenylmodified silicones from BELSIL® PDM and PF series, e.g. BELSIL® PDM 1000 or PF 200, provide the extra edge due to their high refractive index. They are ideal for obtaining shine and luminosity with rinse-off products, serums, masks, treatments and pump sprays.

CREATING STYLING PRODUCTS THAT OFFER BOTH GOOD HOLD AND SOFT HAND

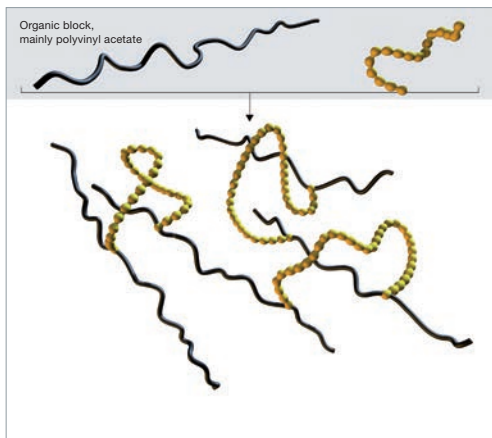
No two hair styles are the same – and styling has become an intensely individualized affair. Women and men prefer a firm, natural hold, yet expect hair to feel pleasant and healthy. Until recently, such requirements inevitably led to a compromise.

The silicone hybrid polymer in BELSIL® P 1101 delights users resolving such contradictions: flexible silicone molecules for ensuring a soft, silky feel combined perfectly with organic polymers that provide a firm hold. And your hairspray gains many additional positive effects without impairing other beneficial properties.





Polysiloxane loops make hair feel soft.



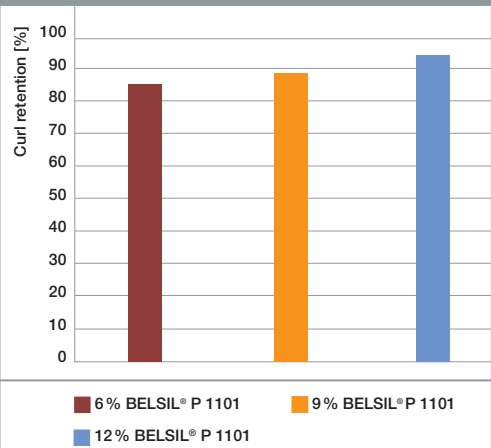
Effect 1: Soft, silky feel

Silicones are predestined for providing a soft, silky feel to hair. Their flexible molecular backbone makes them very mobile and helps to significantly lower friction between hairs. The result: hair that feels soft and silky – even shortly after spraying.

Effect 2: Good hold

The silicone hybrid polymer of BELSIL® P 1101 ensures a natural, firm hold even when humidity rises. Polyvinyl acetate chains in the organic polymer segments bind the hairs like an invisible hair net, imparting the required hold.

Curl retention after 24 hours
(90 % r.h., 23 °C)



Effect 3: Outstanding elasticity

Tresses sprayed with a test formulation achieve curl retention values of 85 to 95 %, thanks to a combination of hydrophobic silicone blocks and the organic, hold-providing polymer backbone. The result is hair that retains its full elasticity even in strong winds.

BELSIL® P 1101 in hairspray provides hold for appealing curls and long waves.



Hairspray with BELSIL® P 1101 shows high elasticity and flexibility properties in omega-loop deformation tests.



Effect 4: Quick drying

Silicones form a transparent, non-hygroscopic film on the hair and can help hairsprays dry more quickly. Here, too, the silicone hybrid polymer in BELSIL® P 1101 offers a clear advantage. Its low surface tension improves the hairspray solution's wetting of the hair and enhances even distribution on the hair fibers.

Effect 5: Less tackiness

Silicones reduce tackiness in hairsprays. They ensure that hairspray quickly dissolves in water without compromising its effectiveness in moist environments.

Effect 6: Thermal protection

Flat irons are very popular in hair styling. During the application, hair is exposed to high temperatures (100-200 °C). TGA studies show silicone hybrid polymers, as in BELSIL® P 1101, can keep moisture in the hair fibre.



SELECTION GUIDE: HAIRCARE **EFFECTS**

Applications				Product Type		Function/Benefits						
Shampoo	Rinse-Off Conditioner	Mask/Balm/Spray/Serum	Styling/Shaping	BELSIL® Name	INCI Designation	Dry Combing	Wet Combing	Softness/Silkiness	Shine	Volume	Thermal-protection	Color-protection
				Volatile Silicones								
		x	x	DM 0.65	Disiloxane		•					
				Dimethicones								
x	x	x	x	DM 60000	Dimethicone	•	••	••	•			
x	x	x	x	eco DM 60000	Dimethicone	•	••	••	•			
x	x			DM 300000	Dimethicone	••	••	••	•			
x	x			DM 500000	Dimethicone	••	••	••	•			
x	x			DM 1000000	Dimethicone	••	••	••	•			
				Dimethicone and Dimethiconol Emulsions								
x				DM 3200 E	Dimethiconol, TEA-C8-10 Alkyl Phosphate, Laureth-23	••	••	••	•			
x				DM 3560 VP	Dimethiconol, Sodium Dodecylbenzenesulfonate, Trideceth-10	••	••	••	•			
x				DM 3112 VP	Dimethiconol, Sodium Dodecylbenzenesulfonate	••	••	•	•			
x	x	x	x	DM 6101 E	Dimethicone, Trideceth-5	••	••	•	•			
x	x	x	x	DM 5102 E	Dimethicone, Laureth-4, Laureth-23	••	••	•	•			
x	x	x	x	DM 5700 E	Dimethicone, Caprylyl/Capryl Glucoside, Sorbitan Laurate	••	••	•	•			
				Gum Blends								
x	x	x	x	DM 3096	Dimethicone, Dimethiconol	•	••	•	•			
x	x	x	x	eco DM 3096	Dimethicone, Dimethiconol	•	••	•	•			
x	x	x	x	GB 1020	Dimethicone, Dimethiconol	•	••	•	•			
x	x	x	x	eco GB 1020	Dimethicone, Dimethiconol	•	••	•	•			
x	x	x	x	GB 3010	Isododecane, Dimethiconol	•	••	•	•			
				Amino-Functional Silicones								
x	x	x	x	ADM 1370	Amodimethicone	••	••	••	•		•	•
x	x	x	x	ADM 6057 E	Amodimethicone, Cetrimonium Chloride, Trideceth-10	••	•••	••	•			•
x	x	x	x	ADM 6102 E	Amodimethicone, Trideceth-10	•••	•••	•••	••			•
x	x	x	x	ADM 6300 E	Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-10	••	•••	•••	••		•••	••
x	x	x	x	ADM 8301 E	Amodimethicone/Morpholinomethyl Silsesquioxane Copolymer, Trideceth-5, Glycerin	•••	•••	•••	••		•••	•••
x	x	x	x	ADM 8105 E	Amodimethicone, C11-15 Pareth-7, Laureth-9, Glycerin, Trideceth-12	••	•••	•••	•		•	•
x	x	x	x	ADM 9000 E DE	Amodimethicone, Trideceth-12, Cetrimonium Chloride	••	••	••	•			•
x	x	x	x	DADM 3240 E	Dimethicone, Bis-Hydroxy/Methoxy/Methyl Amodimethicone Crosspolymer, Trideceth-10	•••	•••	•••	••		•••	

Applications				Product Type		Function/Benefits						
Shampoo	Rinse-Off Conditioner	Mask/Balm/Spray/Serum	Styling/Shaping	BELSIL® Name	INCI Designation	Dry Combing	Wet Combing	Softness/Silkiness	Shine	Volume	Thermal-protection	Color-protection
				Phenyl-Modified Silicones								
	x	x	x	PDM 20	Trimethylsiloxyphenyl Dimethicone	•	•	•	• • •			
	x	x	x	PDM 1000	Trimethylsiloxyphenyl Dimethicone	•	•	•	• • •			
	x	x	x	PF 100	Lauryl Phenylisopropyl Methicone				• • •			
x	x	x	x	PF 200	PEG/PPG-20/20 Phenylisopropyl Caprylyl Dimethicone	•	•	•	• • •			
				Alkyl / Alkoxy-Modified Silicones								
	x	x	x	CDM 3526 VP	C26-28 Alkyl Dimethicone	•	• •	• •		• •		
	x	x	x	CM 7026 VP	C26-28 Alkyl Methicone	•	• •	•		•		
	x	x	x	SDM 5055 VP	Stearyl Dimethicone	•	• •	• •		• •		
				Polyether-Functional Silicones								
x	x	x	x	DMC 6031	PEG/PPG-25/25 Dimethicone	•	•	•				
x	x	x	x	DMC 6038	Bis-PEG 15-Methyl Ether Dimethicone	•	•	•				
x	x	x	x	OW 2100 DE	PEG-12 Dimethicone	•	•	•				
				Silicone Elastomer Resin Gels								
		x	x	EG 6000	Dimethicone, Divinyldimethicone/Dimethicone Crosspolymer	•	•	• •				
		x	x	EG 3000	Isohexadecane, Dimethicone/Vinyl Dimethicone Crosspolymer	•	•	• •				
		x	x	eco EG 3001	Undecane, Tridecane, Dimethicone/Vinyl Dimethicone Crosspolymer	•	•	• •				
		x	x	RG 90	Isododecane, Vinyldimethyl/Trimethylsiloxysilicate Stearyl Dimethicone Crosspolymer	•	•	•				
		x	x	REG 1102	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer	•	•	•	•			
		x	x	eco REG 1102	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer	•	•	•				
Applications				Product Type		Function/Benefits						
Shampoo	Rinse-Off Conditioner	Mask/Balm/Spray/Serum	Styling/Shaping	BELSIL® Name	INCI Designation	Curl Retention	Hold/Fixation	Softness/Silkiness	Non-tackiness	Elasticity	Thermo-protection	Color-protection
				Silicone Polyvinyl Acetates								
		x	x	P 1101	Alcohol, Crotonic Acid/Vinyl C8-12 Isoalkyl Esters/VA/Bis-Vinyldimethicone Crosspolymer	• • •	• •	• • •	• • •	• • •	• • •	

• Suited •• Well suited ••• Ideally suited * Amino-functional silicones are not recommended in aerosol sprays.







FOR CREAMS YOU CAN'T KEEP YOUR FINGERS OFF

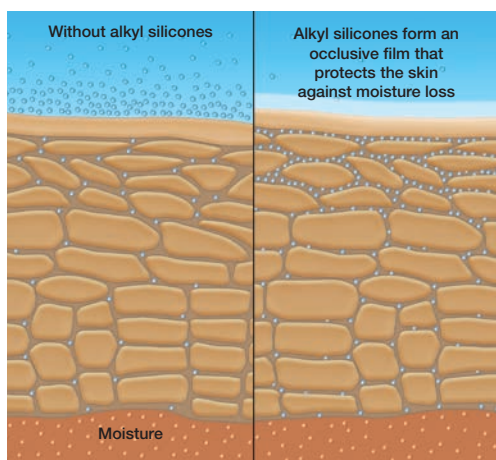
Whether for moisturizing, nourishing or smoothing the skin, modern creams are expected to deliver on their promises, be straightforward to make, have a long shelf life and feel pleasant when applied. WACKER has sophisticated products that help you to quickly meet these complex demands just the way the market wants. Take day creams, for example. We have low-viscosity silicone fluids that are quickly and completely absorbed – they simply vanish from sight. Or, for night creams, we recommend high-viscosity fluids that stay on the skin to form a water-vapor-permeable film that supports the build-up of moisture.





Innovations Meet Nature

Silicone waxes with low alkyl density, and thus a low melting point, are among the innovations in the skin-care sector. The tiniest amounts (0.5-1 %) of these specialist products from WACKER, used as additives for the oil phase of emulsions, improve the spreadability of natural oils and oil blends by up to 120 %. This has been shown in tests on various cosmetic oils, such as jojoba oil, isopropyl myristate, C12-15 alkyl benzoate, decyl oleate, oleyl alcohol and mineral oil. High-melting silicone waxes with melting points of 70 °C can be used as long-lasting consistency regulators. Conditioning lip balms can be reliably made this way.



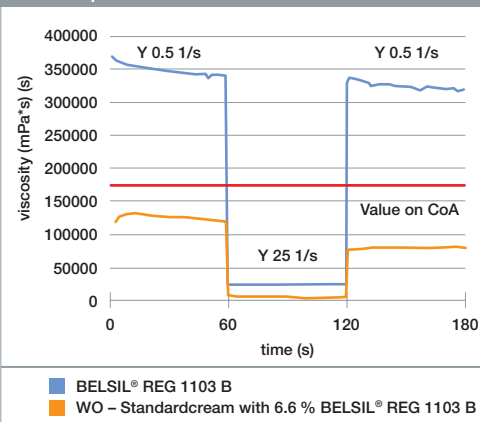
Effect 1: Moisturizer

BELSIL® alkyl-modified silicones create a protective layer that prevents transepidermal moisture loss and helps the skin to stay supple and smooth.

Effect 2: A beautiful protective layer

Dimethicone polymers from WACKER form a breathable protective layer on the skin that makes it look radiant.

Thixotropic effect of BELSIL® REG 1103 B



Effect 3: Pleasant application

Dimethicone polymers also prevent products from soaping when being rubbed into the skin and ensure that the creams are pleasant on the skin. BELSIL® elastomer gel grades impart, with their flexible silicone loops, an extraordinarily soft and smooth skin feeling. The thixotropic properties enable quick and easy application.

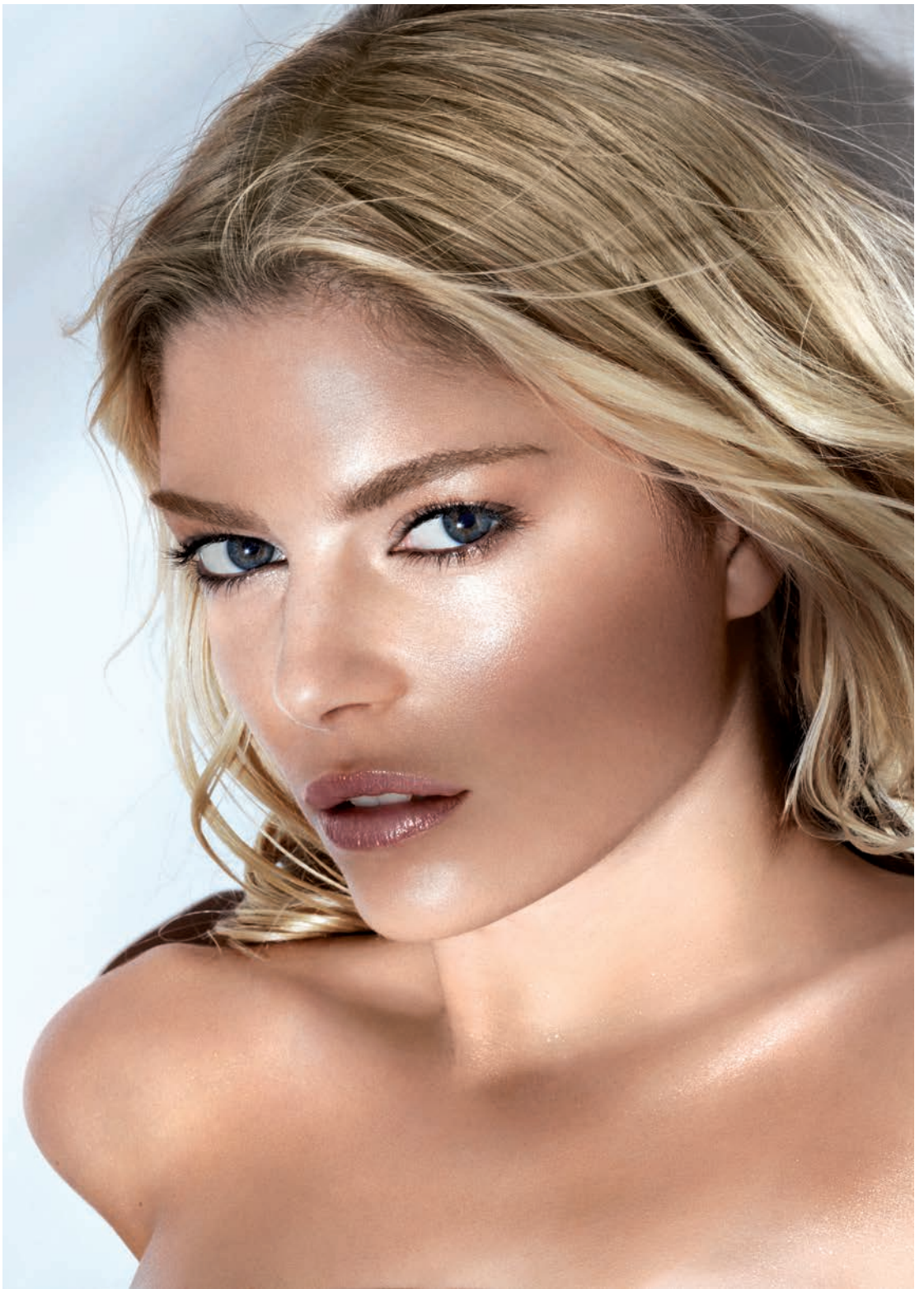
Effect 4: Less tackiness

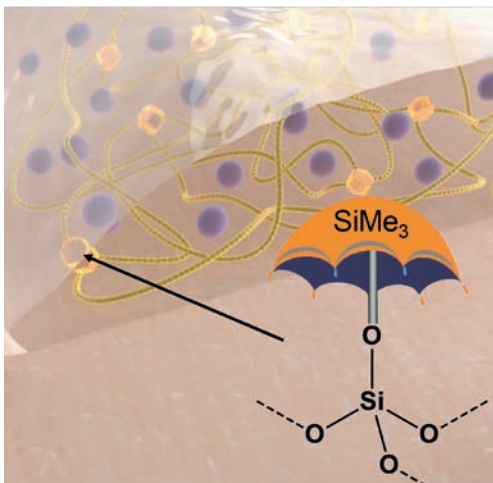
Some creams, such as those enriched with acrylic acid polymers, tend to adhere strongly when rubbed in and feel sticky as a result. Volatile silicones and phenyl silicone fluids from WACKER reduce this undesirable effect.

FOR SUN PROTECTION THAT PUTS OTHERS IN THE SHADE

Sunscreen products are evolving into a major market segment. Consumers have become sensitized in more ways than one. Effective UV protection, good spreadability and water resistance are key properties. Transparency, shimmer and sprayability are additional properties that provide an edge, season after season. WACKER helps you to grow in tandem with this growing market.

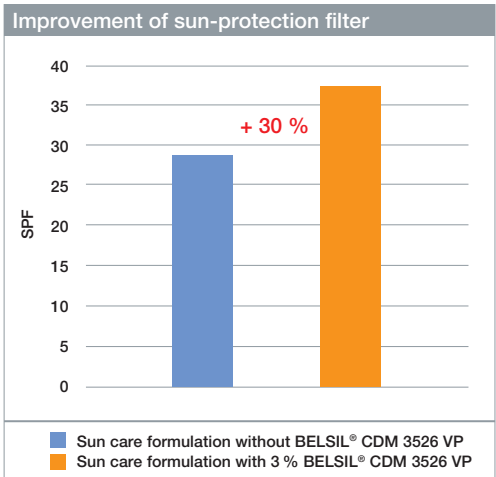






Effect 1: Water resistance

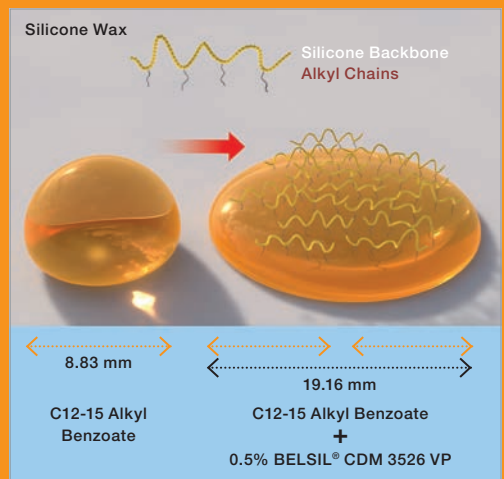
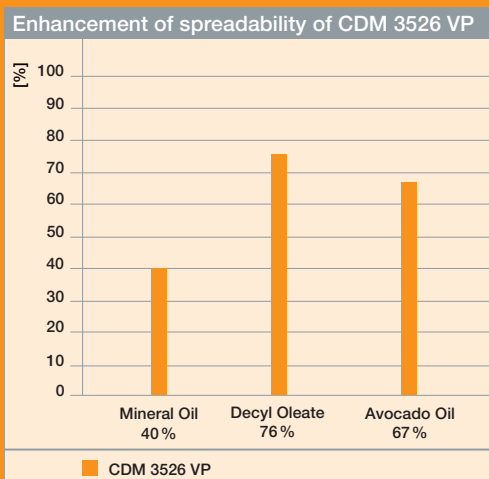
High-molecular BELSIL® dimethicone fluids, silicone resins and silicone resin elastomer gels form a water-repellent film on the skin that maintains the protection.



Effect 2: Increasing the sun-protection factor (SPF)

BELSIL® CDM 3526 VP, the high-melting silicone wax with a melting point of 70°C, stabilize the film and thus help to raise the sun-protection factor.

Mechanism of improved oil spreading with silicone waxes



Effect 3: More uniform distribution

Volatile silicones, low-molecular dimethicone fluids and low-melting-point silicone waxes such as BELSIL® CDM 3526 VP ensure that the sunscreen can be spread more evenly and rubbed in better.

Effect 4: Better dispersion

Physical light filters, such as titanium dioxide and zinc oxide, have to be evenly distributed throughout the formulation. BELSIL® WO 5000 ensures optimum dispersion of the micropigments and thus affords reliable protection.

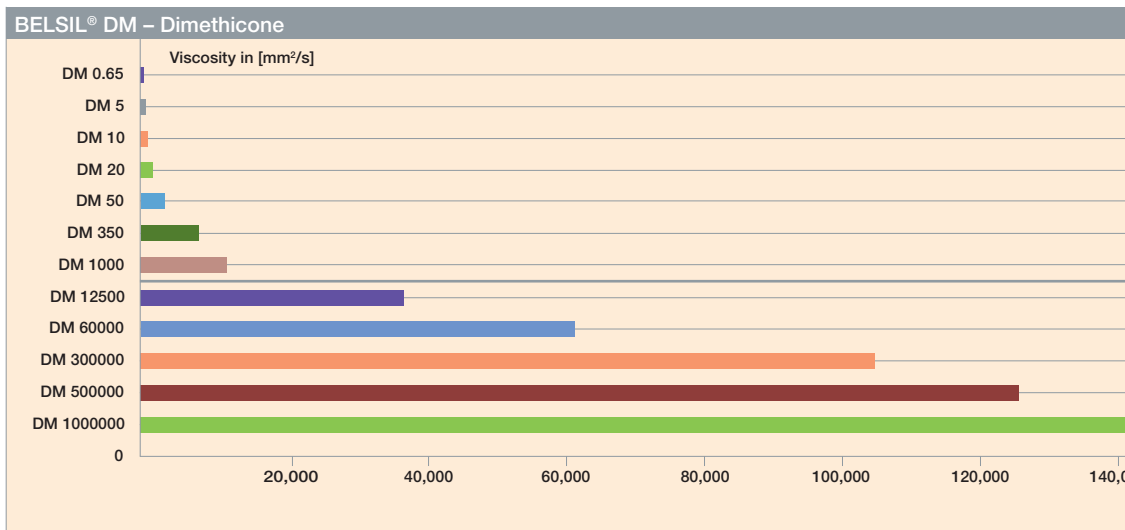
CONDITIONING FOR MEN WHO HAVE EARNED IT

A youthful countenance is becoming more important for men, too. Some 98 % of men nowadays use conditioning products and 70 % of 18 to 49 year olds are apparently more interested in facials than in computers. The men's market is estimated to grow twice as fast as the women's cosmetics market. One focus here is on the face because it is not protected by clothing.





A hard and fast rule: the higher the molecular weight, the higher is the viscosity. Low-viscosity BELSIL® silicone fluids spread better, whereas higher-viscosity products form a protective film on the skin.

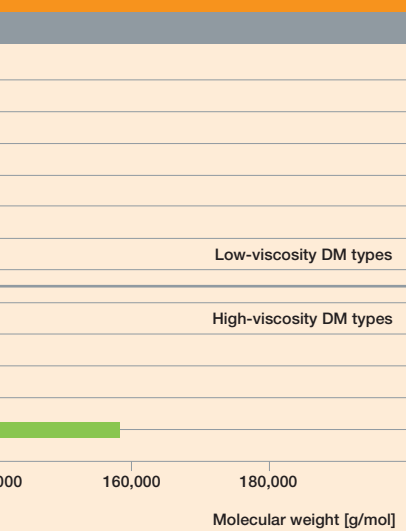


Effect 1: Protection against drying out

BELSIL® dimethicones create a breathable, protective layer on the skin that prevents it from drying out.

Effect 2: Suppleness of the skin

Volatile silicones and low viscosity dimethicones from WACKER make the skin supple and soft.



Effect 3: Better spreadability

The same volatile silicones, low viscosity dimethicones and BELSIL® CDM 3526 VP are also suitable for making after-shave products spread better.

Effect 4: Less irritation

Surfactants can irritate skin and mucous membranes. The use of BELSIL® polyether-functional silicones and BELSIL® WO 5000 greatly alleviates the irritation.



SELECTION GUIDE: SKINCARE **EFFECTS**

Applications				Product Type		Function / Benefits							
Shaving Products	Skin Care	Sunscreen	AP/Deo	BELSIL® Name	INCI Designation	Softness	Anti-whitening	Moisturizing	Thickening	Enhanced Spreading	Reduces Tackiness	Water Repellence	Emulsifier
				Volatile Silicones									
x	x	x	x	DM 0.65	Disiloxane	•	• •			• •	•		
x	x	x	x	DM 1 plus	Dimethicone	• •	• •			• • •	• • •		
				Dimethicones									
x	x	x	x	DM 5	Dimethicone	•	• •			• • •	• • •		
x	x	x	x	eco DM 5	Dimethicone	•	• •			• • •	• • •		
x	x	x	x	DM 10	Dimethicone	•	•			• • •	• •		
x	x	x	x	eco DM 10	Dimethicone	•	•			• • •	• •		
x	x	x		DM 20	Dimethicone	•	•			• •	•		
x	x	x		eco DM 20	Dimethicone	•	•			• •	•		
x	x	x		DM 50	Dimethicone	•	•			• •	•		
x	x	x		eco DM 50	Dimethicone	•	•			• •	•		
x	x	x	x	DM 100	Dimethicone	•	•			•	•		
x	x	x	x	eco DM 100	Dimethicone	•	•			•	•		
x	x	x	x	DM 350	Dimethicone	•	•			•			
x	x	x	x	eco DM 350	Dimethicone	•	•			•			
x	x	x	x	DM 1000	Dimethicone	•	•						
x	x	x	x	eco DM 1000	Dimethicone	•	•						
x	x	x	x	DM 12500	Dimethicone	•			•				
x	x	x		DM 60000	Dimethicone	•			•				
x	x	x		eco DM 60000	Dimethicone	•			•				
x	x	x		DM 300000	Dimethicone	•		•	•			•	
x	x	x		DM 500000	Dimethicone	•		•	•			•	
x	x	x		DM 1000000	Dimethicone	•		•	•			•	
				Gum Blends									
x	x	x		DM 3096	Dimethicone, Dimethiconol	• •		•		•		•	
x	x	x		eco DM 3096	Dimethicone, Dimethiconol	• •		•		•		•	
x	x	x	x	GB 1020	Dimethicone, Dimethiconol	• •	•	•		• •		•	
x	x	x	x	eco GB 1020	Dimethicone, Dimethiconol	• •	•	•		• •		•	
x	x	x		GB 3010	Isododecane, Dimethiconol	• •	•	•		•		•	
				Phenyl-Modified Silicones									
x	x	x	x	PDM 20	Trimethylsiloxyphenyl Dimethicone	• •	• •			• •	• • •	•	
x	x	x	x	PDM 1000	Trimethylsiloxyphenyl Dimethicone	• •	•			•	• •	•	
	x	x	x	PF 100	Lauryl Phenylisopropyl Methicone	•	•			•	•		
	x	x		PF 200	PEG/PPG-20/20 Phenylisopropyl Caprylyl Dimethicone	•				•	•		• •

Applications				Product Type		Function / Benefits							
Shaving Products	Skin Care	Sunscreen	AP/Deo	BELSIL® Name	INCI Designation	Softness	Anti-whitening	Moisturizing	Thickening	Enhanced Spreading	Reduces Tackiness	Water Repellence	Emulsifier
				Alkyl/Alkoxy-Modified Silicones									
x	x	x	x	CDM 3526 VP	C26-28 Alkyl Dimethicone	• •		•	•	• • •	•	• •	
x	x	x	x	CM 7026 VP	C26-28 Alkyl Methicone	•		• • •	• •			• •	
x	x	x	x	SDM 5055 VP	Stearyl Dimethicone	•		•	•	•		• •	
				Polyether-Functional Silicones									
x	x	x	x	DMC 6031	PEG/PPG-25/25 Dimethicone	•	•			•			• • •
x	x	x	x	DMC 6038	Bis-PEG 15-Methyl Ether Dimethicone	•	•			•			• • •
x	x	x	x	OW 2100 DE	PEG-12 Dimethicone	•	•			•			• • •
x	x	x	x	WO 3700 NEW!	Cetyl PEG/PPG-10/1 Dimethicone	•	•			•	•		• • •
				Silicone Polyglycosides									
x	x	x	x	WO 5000	Dimethicone, Caprylyl Dimethicone Ethoxy Glucoside	• •	• •			• •			• • •
				Silicone Resins									
x	x	x		PMS MK Powder	Polymethylsilsesquioxane	•						• •	
x	x	x		SPR 45 VP	Polyphenylsilsesquioxane	•						• •	
x	x	x		TMS 803	Trimethylsiloxysilicate	•						• •	
x	x	x		eco TMS 803	Trimethylsiloxysilicate	•						• •	
				Silicone Elastomer Resin Gels									
x	x	x	x	EG 6000	Dimethicone, Divinyldimethicone/Dimethicone Crosspolymer	• • •			• •	• •	• •	•	
x	x	x	x	EG 1200	Dimethicone, Dimethicone Crosspolymer				• • •	• •	•	•	
x	x	x	x	EG 3000	Isohexadecane, Dimethicone/Vinyl Dimethicone Crosspolymer	• • •			• •	• •	• •	•	
x	x	x	x	eco EG 3001	Undecane, Tridecane, Dimethicone/Vinyl Dimethicone Crosspolymer	• • •			• • •	• •	• •	•	
x	x	x	x	RG 90	Isododecane, Vinyldimethyl/Trimethylsiloxysilicate Stearyl Dimethicone Crosspolymer	• •			• •	• •	• •	• • •	
x	x	x	x	REG 1102	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer	• •			• •	• •	• •	• • •	
x	x	x	x	eco REG 1102	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer	• •			• •	• •	•	• • •	
x	x	x	x	REG 1103 B	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer and Caprylyl Dimethicone Ethoxy Glucoside	• •			• •	• •	•	• • •	•
				Pyrogenic Silica									
x	x	x	x	HDK®N20	Silica				• • •				
x	x	x	x	HDK®T30	Silica				• • •				
x	x	x	x	HDK®H15	Silica Dimethyl Silylate				• • •				
x	x	x	x	HDK®H18	Silica Dimethyl Silylate				• • •				
x	x	x	x	HDK®H20	Silica Dimethyl Silylate				• • •				
x	x	x	x	HDK®H30	Silica Dimethyl Silylate				• • •				
x	x	x	x	HDK®H2000	Silica Silyate				• • •				







FOR FOUNDATIONS THAT MAKE EVERYONE LOOK GOOD

A perfect foundation is the basis of beauty. According to skin type, it might have to hide well or just slightly, be suitable for dry or greasy skin, or lighten or darken the complexion. But there are things it must always do. It must never dry out the skin, must not wear off and it must look natural. After all, the art of applying make-up is to make it look as if you're not wearing any. To achieve this, you need additives that make the colored pigments spread evenly, have a conditioning effect and are long-lasting. WACKER has these additives for you – along with the formulation expertise needed for developing compelling, innovative solutions for markets all the way from Asia to Europe.







Effect 1: A uniform complexion

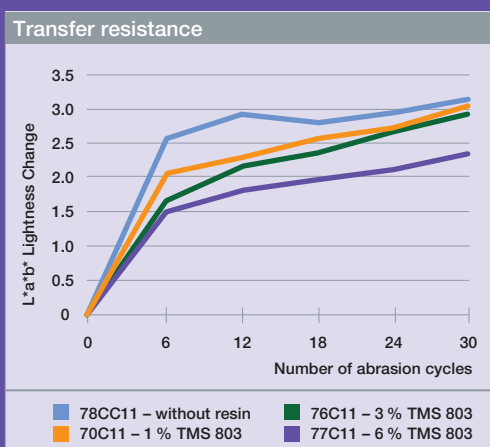
Volatile and low melting alkyl-modified silicones, as well as low viscosity dimethicones enhance the spreadability of foundations and so ensure a uniform result.

Effect 2: Integrated protection

Low-viscosity BELSIL® dimethicones prevent emulsions from soaping, and form a breathable film on the skin that protects and conditions.

Effect 3: Silky shine

Phenyl silicone fluids from WACKER make the skin shiny and supple.



Effect 4: Moisture-retaining

High-melting alkyl-modified silicones from WACKER protect the skin by forming an occlusive film that prevents water loss and regulates the moisture content of the treated area.

Effect 5: Long-lasting effect

The film-forming properties of BELSIL® resins and resin elastomer gels make for particularly long-lasting effects in foundations or lipsticks, as shown in the chart. The flatter the curve, the better is the performance of the tested product. This chart illustrates the superior transfer resistance of BELSIL® TMS 803.

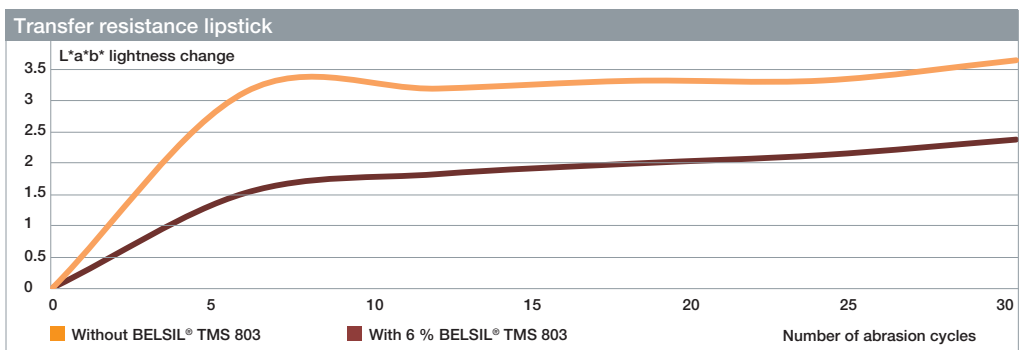
FOR LIPSTICKS THAT NEED A WEAPONS LICENSE

Lipsticks are one of the most popular weapons in a woman's armory. It's no surprise that these tiny high-tech products have to meet exacting demands. The perfect lipstick has a high melting point (55 – 65°C) so that it won't melt in the heat (e.g. of a car's glove compartment) and won't run, and is firm enough to withstand pressure when applied. But it also has to be soft and easy to apply. And it must spread evenly and form a soft, attractive film.

This film should look intact, but must not be too thick or greasy, nor must it seep into the tiny creases around the mouth. Finally, the prevailing fashion will dictate whether the favorite lipstick will be glossy, matt, transparent, opacifying or brilliant. WACKER helps you out here with its range of sophisticated products and wealth of formulation expertise, and by conducting test series in its own labs, to ensure you are optimally equipped for this exciting market.



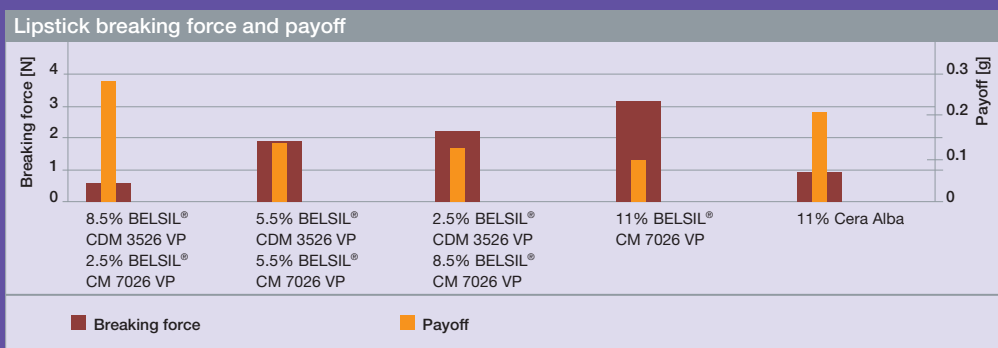




Proof of transfer resistance. The lipstick is applied to paper cards. A weighted roller is moved back and forth over it several times to simulate transfer of the lipstick. The change in color is measured with the aid of a colorimeter from the $L^*a^*b^*$ values. Lipsticks with BELSIL® TMS 803 show much better transfer resistance.

Effect 1: Kiss-proof

BELSIL® REG 1102 and BELSIL® TMS 803 create a kiss-proof, long-lasting protective film. Tests show that high-melting silicone waxes, especially, perform several tasks at one go. They make for a firmer stick, improve transfer resistance (kiss-proof properties) and are pleasant on the skin. This combination makes them superior to bees-wax.



The balance between necessary payoff and suitable hardness of lipstick can be easily adjusted via a combination of low and high melting silicone waxes.

Effect 2: Sheen

Seductively shiny lips have been in fashion for some time now. This is where BELSIL® SPR 45 VP and phenyl silicone fluids from WACKER can show off their strengths in terms of sheen and ease of application.

Effect 3: Color

To be fashionable, the color particularly has to be right. Volatile silicone fluids from WACKER immobilize colored pigments and prevent the color from seeping into lip creases.

FOR EYES THAT SAY MORE THAN A THOUSAND WORDS

The area around the eyes is sensitive. And products used there must not cause irritation. This, too, is an argument in favor of using silicones in the cosmetics industry. The reason is that silicones are largely inert and so rank among those additives which are particularly gentle. Consequently, silicones can also unleash their potential in mascara, eye-liner pencils and eye-shadows.







Effect 1: Water-resistant colors

Through their hydrophobic properties, BELSIL® silicone resins improve pigment processing and increase the water-resistance of mascara and eye-shadows.

Effect 2: Dramatic lashes

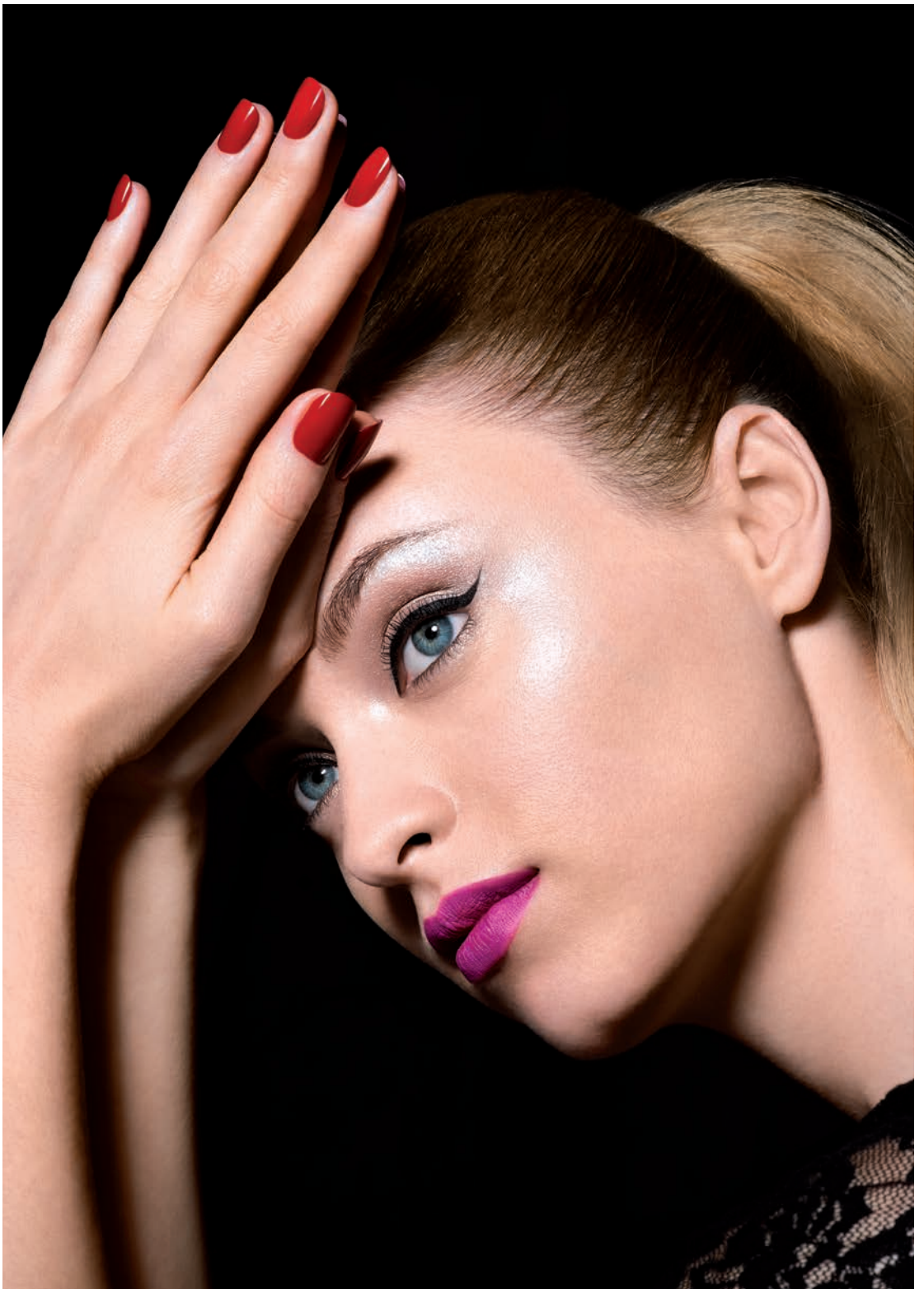
Alkyl-modified silicones are largely inert and ideal for the sensitive area around the eyes. They soften the eyelashes, giving them definition and making them look longer and thicker.



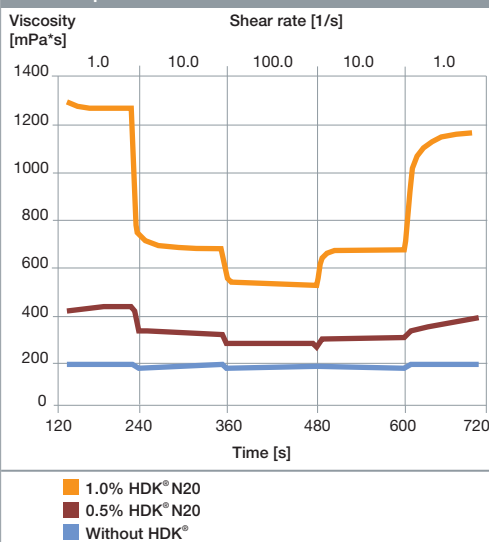
FOR NAIL POLISHES THAT ACCENTUATE THE PERFECT LOOK

Nail polish has been a basic beauty accessory for women across all strands of society. Regardless of its eye-catching nature, there is no hard and fast rule about the choice of nail polish. You can opt for any color, texture or finish you like. All the same, whether you have extra-long acrylic nails or short and natural ones, the key to a satisfying appearance is that your nail polish provides several performance benefits. A favorable nail polish should be easy to apply, have a short drying time, provide a glossy or matte finish with uniform coverage, be durable and have high split resistance. You can rely on WACKER to provide the right additives that deliver these performance benefits, allowing you to focus on setting the trend for nail polish colors and textures.

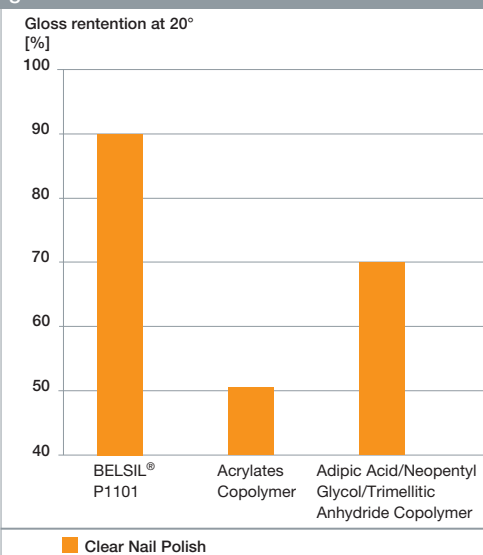




Using HDK® to add thixotropy to a nail polish



Using BELSIL® P 1101 to improve gloss retention



Effect 1: Long lasting

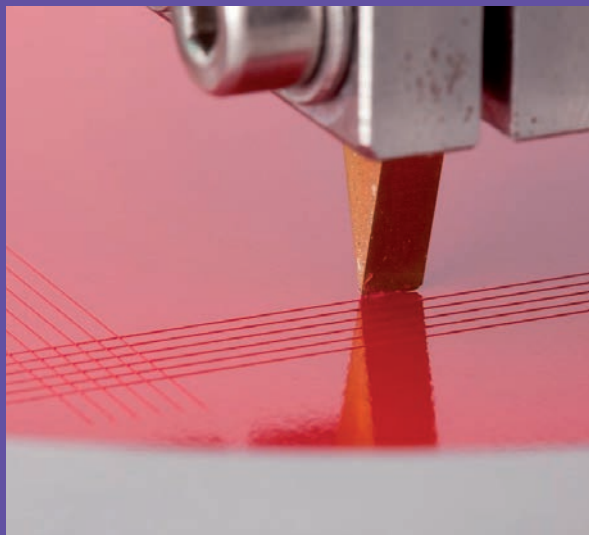
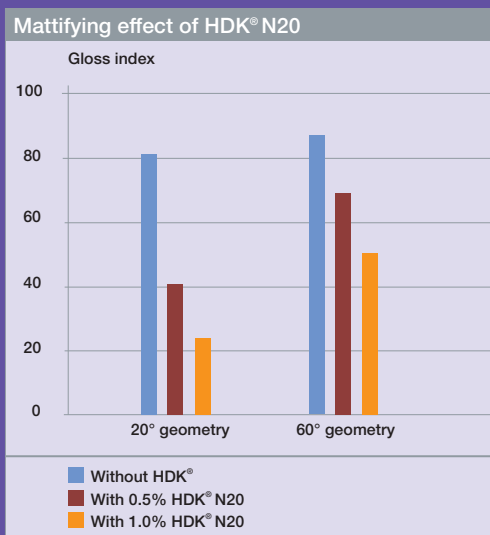
The main claim made by nail polish advertisements nowadays is all about a long-lasting look. BELSIL® P 1101 can be used as a resin in any standard nail polish formulation to improve adhesion to the surface and provide high elasticity and high scratch resistance. This enables outstanding gloss retention and very good split resistance even under severe mechanical stress.

Effect 2: Rheology

HDK® silica ensures better pigment distribution and prevents sedimentation. What's more, HDK® silica can add a thixotropic effect that improves rheology and facilitates the application of nail polish.

Effect 3: Soft, silky feel

Silicones are ideal for bestowing a soft, silky and slick feel on the dried nail polish. Here again, BELSIL® P 1101 – a film-forming hybrid silicone – helps lower friction signifi-



cantly whenever nails are touched. The result: nails feel soft and silky, and become very resistant to mechanical damage such as scratches that often mar the look, finish and longevity of a standard nail polish.

Effect 4: Gloss or matting effect

Ever-changing fashions determine whether formulators aim for glossy or matte nail polish colors. BELSIL® SPR 45 VP and phenyl silicone fluids from WACKER can give your

formulation an extra boost of shine, while HDK® silica – at higher concentrations – can help add a matting effect. Thus, the formulator has plenty of leeway and flexibility in achieving the desired effect with these and other silicone ingredients from WACKER.



SELECTION GUIDE: MAKE-UP **EFFECTS**

Applications			Product Type		Function/Benefits							
Emulsion Products ¹⁾	Sticks/Anhydrous Products ²⁾	Powder Products ³⁾	BELSIL® Name	INCI Designation	Softness	Shine	Pigment Spreading	Prevents Pigment Agglomeration	Transfer Resistance	Moisturizing	Thickening	Emulsifier
			Volatile Silicones									
x	x	x	DM 0.65	Disiloxane	•		•					
x	x	x	DM 1 plus	Dimethicone	••		••	•				
			Dimethicones									
x	x	x	DM 5	Dimethicone	•		••	•				
x	x	x	eco DM 5	Dimethicone	•		••	•				
x	x	x	DM 10	Dimethicone	•		••	•				
x	x	x	eco DM 10	Dimethicone	•		••	•				
x	x	x	DM 20	Dimethicone	•		•					
x	x	x	eco DM 20	Dimethicone	•		•					
x	x	x	DM 50	Dimethicone	•		•					
x	x	x	eco DM 50	Dimethicone	•		•					
x	x	x	DM 100	Dimethicone	•		•					
x	x	x	eco DM 100	Dimethicone	•		•					
x	x	x	DM 350	Dimethicone	•		•					
x	x	x	eco DM 350	Dimethicone	•		•					
x	x	x	DM 1000	Dimethicone	•							
x	x	x	eco DM 1000	Dimethicone	•							
x	x	x	DM 12500	Dimethicone	•						•	
x	x	x	DM 60000	Dimethicone	•						•	
x	x	x	eco DM 60000	Dimethicone	•						•	
x	x	x	DM 300000	Dimethicone	•				•	•	•	
x	x	x	DM 500000	Dimethicone	•				•	•	•	
x	x	x	DM 1000000	Dimethicone	•				•	•	•	
			Gum Blends									
x	x	x	DM 3096	Dimethicone, Dimethiconol	••				•	•		
x	x	x	eco DM 3096	Dimethicone, Dimethiconol	••				•	•		
x	x	x	GB 1020	Dimethicone, Dimethiconol	••				•	•		
x	x	x	eco GB 1020	Dimethicone, Dimethiconol	••				•	•		
x	x	x	GB 3010	Isododecane, Dimethiconol	••				•	•		
			Phenyl-Modified Silicones									
x	x	x	PDM 20	Trimethylsiloxyphenyl Dimethicone	••	•••	•					
x	x	x	PDM 1000	Trimethylsiloxyphenyl Dimethicone	••	•••	•					
x	x	x	PF 100	Lauryl Phenylisopropyl Methicone	•	•••	•					
x	x	x	PF 200	PEG/PPG-20/20 Phenylisopropyl Caprylyl Dimethicone	•	•••	••	••				••

Applications			Product Type		Function/Benefits							
Emulsion Products ¹⁾	Sticks/Anhydrous Products ²⁾	Powder Products ³⁾	BELSIL® Name	INCI Designation	Softness	Shine	Pigment Spreading	Prevents Pigment Agglomeration	Transfer Resistance	Moisturizing	Thickening	Emulsifier
			Alkyl/Alkoxy-Modified Silicones									
x	x	x	CDM 3526 VP	C26-28 Alkyl Dimethicone	• •	•	• •		•	•	•	
x	x	x	CM 7026 VP	C26-28 Alkyl Methicone	•	•			•	• • •	• •	
x	x	x	SDM 5055 VP	Stearyl Dimethicone	•	•	•		•	•	•	
			Polyether-Functional Silicones									
x	x		DMC 6031	PEG/PPG-25/25 Dimethicone	•		•					• • •
x	x		DMC 6038	Bis-PEG 15-Methyl Ether Dimethicone	•		•					• • •
x	x		OW 2100 DE	PEG-12 Dimethicone	•		•					• • •
x	x		WO 3700 NEW!		•		•	•				• • •
			Silicone Polyglycosides									
x	x		WO 5000	Dimethicone, Caprylyl Dimethicone Ethoxy Glucoside	• •		• • •	• •				• • •
			Silicone Resins									
x	x	x	PMS MK Powder	Polymethylsilsesquioxane	•			•	• •			
x	x	x	SPR 45 VP	Polyphenylsilsesquioxane	•	• • •			• •			
x	x	x	TMS 803	Trimethylsiloxysilicate	•			•	• • •			
x	x	x	eco TMS 803	Trimethylsiloxysilicate	•			•	• • •			
			Silicone Elastomer Resin Gels									
x	x	x	EG 6000	Dimethicone, Divinyldimethicone/Dimethicone Crosspolymer	• • •		•			•	• •	
x	x	x	EG 1200	Dimethicone, Dimethicone Crosspolymer	• •		•			•	• • •	
x	x	x	EG 3000	Isohexadecane, Dimethicone/Vinyl Dimethicone Crosspolymer	• • •		•			•	• •	
x	x	x	eco EG 3001	Undecane, Tridecane, Dimethicone/Vinyl Dimethicone Crosspolymer	• • •		•			•	• • •	
x	x	x	RG 90	Isododecane, Vinyldimethyl/Trimethylsiloxysilicate Stearyl Dimethicone Crosspolymer	• •		•		• • •	•	•	
x	x	x	REG 1102	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer	• •		•		• • •	•	• •	
x	x	x	eco REG 1102	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer	• •		•		• • •	•	• •	
x	x	x	REG 1103 B	Dimethicone, Dimethicone/Vinyltrimethylsiloxysilicate Crosspolymer and Caprylyl Dimethicone Ethoxy Glucoside	• •		• •		• • •	•	• •	•
			Silicone Polyvinyl Acetates									
x	x		P 1101	Alcohol, Crotonic Acid/Vinyl C8-12 Isoalkyl Esters/VA/Bis-Vinyldimethicone Crosspolymer	• •	• •			• • •		•	
			Pyrogenic Silica									
x	x	x	HDK® N20	Silica			•	• •			• • •	
x	x	x	HDK® T30	Silica			•	• •			• • •	
x	x	x	HDK® H15	Silica Dimethyl Silylate			•	• •			• • •	
x	x	x	HDK® H18	Silica Dimethyl Silylate			•	• •			• • •	
x	x	x	HDK® H20	Silica Dimethyl Silylate			•	• •			• • •	
x	x	x	HDK® H30	Silica Dimethyl Silylate			•	• •			• • •	
x	x	x	HDK® H2000	Silica Silyate			•	• •			• • •	

EXPERTISE AND SERVICE NETWORK ON FIVE CONTINENTS



WACKER is one of the world's leading and most research-intensive chemical companies, with total sales of €8.2bn. Products range from silicones, binders and polymer additives for diverse industrial sectors to bioengineered pharmaceutical actives and hyperpure silicon for semiconductor and solar applications. As a technology leader focusing on sustainability, WACKER promotes products and ideas that offer a high value-added potential to ensure that current and future generations enjoy a better quality of life, based on energy efficiency and protection of the climate and environment.

Spanning the globe with 4 business divisions, we offer our customers highly-specialized products and comprehensive service via 27 production sites, 25 technical competence centers, 13 WACKER ACADEMY training centers and 47 sales offices in Europe, North and South America, and Asia – including a presence in China. With a workforce of some 15,700, we see ourselves as a reliable innovation partner that develops trailblazing solutions for, and in collaboration with, our customers. We also help them boost their own success. Our technical competence centers employ local specialists, who assist




customers worldwide in the development of products tailored to regional demands, supporting them during every stage of their complex production processes, if required. WACKER e-solutions are online services provided via our customer portal and as integrated process solutions. Our customers and business partners thus benefit from reliable service and comprehensive information to enable projects and orders to be handled fast, reliably and highly efficiently. Visit us anywhere, anytime around the world at: www.wacker.com



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6022e/03.24 replaces 6022e/03.23