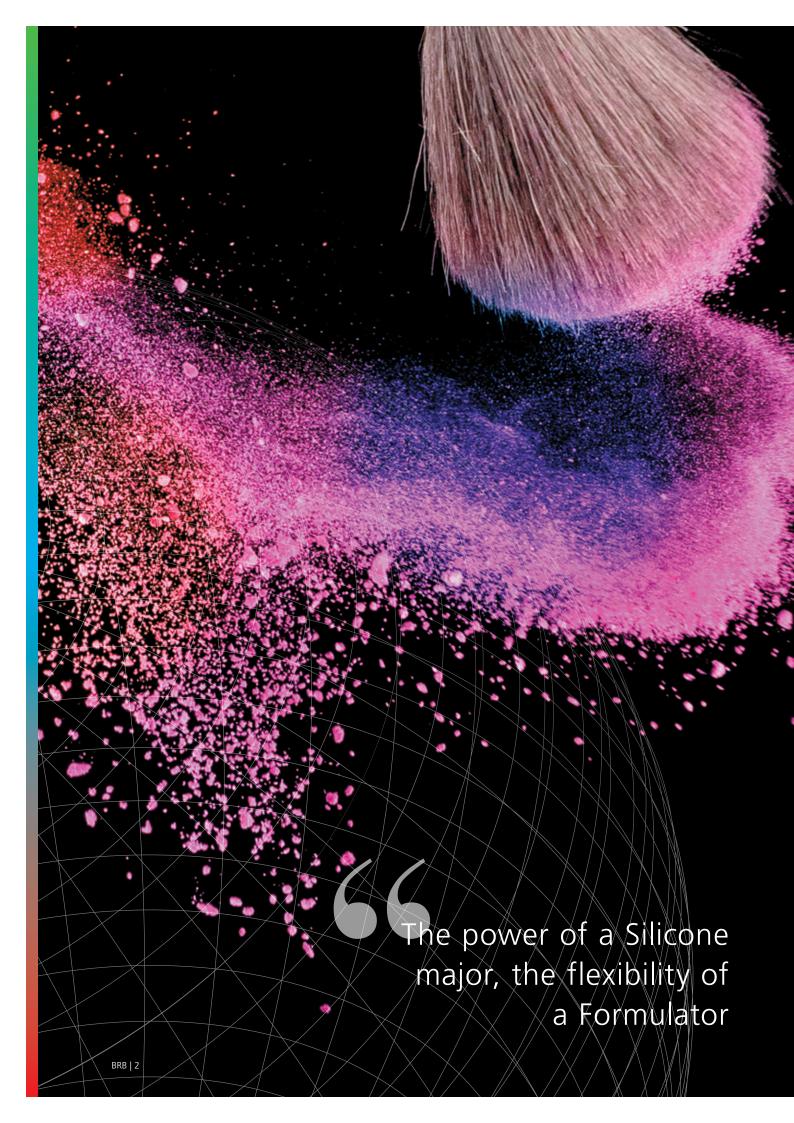
AMBITION / FLEXIBILITY / PASSION / INNOVATION



The power of smart ingredients

Silicones for Personal Care





Ambition, flexibility, passion and innovation

BRB Silicones, a business unit of BRB International BV, is a producer of specialty silicones supplying to multi discipline of industries.

Established in 1981, headquartered in the south of the Netherlands, BRB International BV has created an effective worldwide supply chain network with offices and warehouses in the UK, Poland, South Africa, United States, Canada, Malaysia, Australia, China, Singapore and Turkey.

Our manufacturing sites are located in Europe, North America and Asia.

Product range

The product range includes emulsions, antifoams, water repellants, elastomers, lubricants, silanes, resins, dimethicone & cyclomethicone blends, dimethicone copolyols, crosspolymers and customized products.

BRB Silicones also supplies a very broad range of core and specialty intermediates with an exceptional combination of product supply regularity and competitive pricing.

BRB Silicones enjoys continuous growth thanks to its flexibility and customization capabilities.

Our commitments in the Personal Care market

The Personal Care market is a strategic market for BRB Silicones and we constantly invest in people and equipment to support our commitments to this industry.

Our continuously expanding range consists of a balanced mix of well-established large commodity products and smaller performant specialty silicones.

Our increasing technical service team is supporting our customers with new trendy formulations to support today's challenge of innovative, performant and cost effective formulations.

Silicones continuously gained popularity in Personal Care applications due to their capacity to develop more performant and attractive formulations. Benefits often obtained with small amount of silicones. This is the power of smart ingredients.

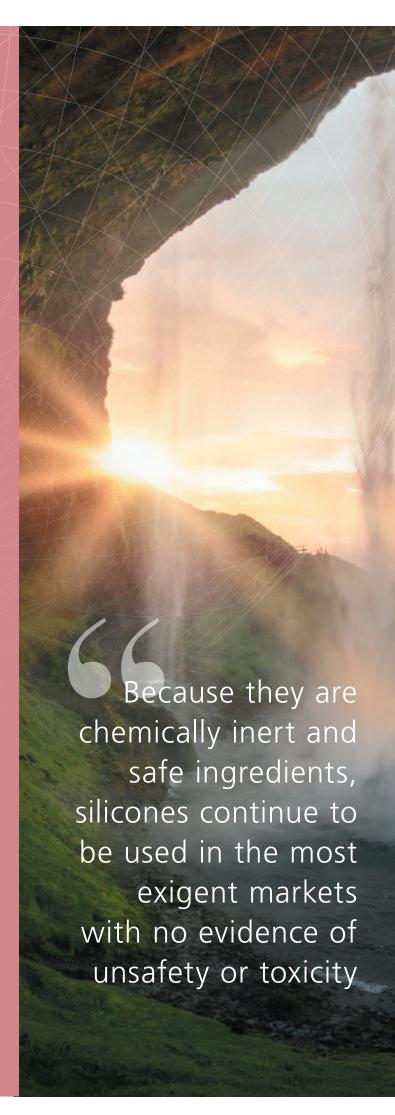
Silicone chemistry

Silicones contain up to 60% silicon and oxygen, the most widespread elements in the earth's crust.

Because they are chemically inert and safe ingredients, silicones are used in the most exigent markets such as pharmaceutical, medical devices, personal lubricants or food with no evidence of unsafety or toxicity.

Silicones gained a huge popularity since their first introduction in Personal Care formulations in 1970's and are in the meantime present in every second new formulation launched

With their enhanced performance, compatibility with other ingredients and unequal sensory, silicones are valuable for formulators and consumers to obtain performant and innovative formulations.





Real facts about silicones

| MYTHS | | EVIDENCE | | |
|---|--------------|--|--|--|
| Silicones are petroleum derivatives | ORIGIN | Silicones come from quartz, composed of the two most abundant elements on earth: oxygen and silicon | | |
| Silicones are occlusive and do not let skin breath | OCCLUSIVITY | Silicones are permeable to gas and water vapor. Some silicones are wetting agents | | |
| They are film formers which prevent water to evaporate from skin | | They create a skin barrier which provides water resistance and permit skin pore to breath | | |
| They create a build-up effect on skin and hair | ACCUMULATION | Silicones may deposit, but not permanently | | |
| They cannot be rinsed off | | They can be easily washed off with standard cleansers | | |
| They cannot be degraded and they accumulate into the environment | ENVIRONMENT | Silicones chemically degrade into silica and carbon dioxide in soil and air | | |
| They accumulate in living organisms | | Silicones are too large to be absorbed by biological membranes | | |
| They are toxic | SAFETY | Silicones are inert and harmless due to their chemistry | | |
| to skin | | In vitro tests have been performed with no cytotoxic results | | |
| | | Silicones have been dermatologically tested with no allergic reactions. They can be claimed as hypoallergeni | | |
| | | Silicones do not present skin sensitization under repeated use | | |
| | | They are safe to use even in sensitive areas or mucosa | | |

Silicones are the best unbeatable conditioners for hair care

Hair care

Silicone technology is known to offer pre-eminent multifunctional conditioning effects for all hair types.

These materials deliver unparalleled detangling, unique softness and excellent shine effects. They are the go-to technology to rejuvenate damaged hair, treat dryness, restore cuticle integrity, improve hair strength and protect from the effects of styling heat treatments. They are able to reduce flyaway problems, improve texture, minimize unwanted frizz effects and impart excellent color protection.

Silicones are easily formulated not to accumulate allowing a highly desirable non-greasy, silky touch. Our portfolio of silicones can meet all your hair treatment needs.

Benefits

- Supreme conditioning
- Softness / silkiness
- Shin
- Ease of detangling
- Dry combing force reduction
- Wet combing force reduction
- Thermal protection
- Color protection
- Frizz & flyaways reduction
- Volume
- Cuticle sealers
- Prevent hair breakage
- Reduce dry time

Applications

- Rinse off and leave on conditioners
- Shampoo
- Hairstyling
- Hair dyes





THERMAL PROTECTION



BRB 5446 protects from heat damage, preventing cuticle to crack. A: Control versus B: 2% BRB 5446 + 1.5% BRB 1288 after 50 cycles of hair straightening at 230°C





Silicones can create a breathable shield which protects from external aggressions

Silicones deliver a
flawless, highly desirable
sensory effect which is
silky smooth and velvety.

In AP/DEO formulations they impart important tack-free, anti-whitening character together with non-cooling, rapid drying. Silicone's unique lubricity is important to uniformly spread and level the broadest spectrum of actives and UV filters in modern skincare systems.

They can form a powerful water resistant shield to protect skin from external aggressions, whilst simultaneously allowing pores to breath.

Besides creating innovative and luxury textures, they have an important role delivering immediate soft focus effects, masking wrinkles and skin imperfections.

Benefits

- Softness / silkiness
- Anti whitening
- Moisturizing
- Thickening aid / texturizing agents
- Enhance spreading
- Reduce tackiness
- Water resistance
- Emulsifier
- Reduce dry time
- Soft focus & mattifying effect
- Wrinkle / imperfection masking
- Anti-pollution shield

Application

- Moisturizers
- Cleansers, scrubs
- Body wash and shower gel
- Face and body treatments
- Face and body masks
- Eye care
- Sun care
- Self tanners
- Lip treatments
- Wet wipes
- Men care
- AP DEO
- Baby care
- Hair removal and shaving

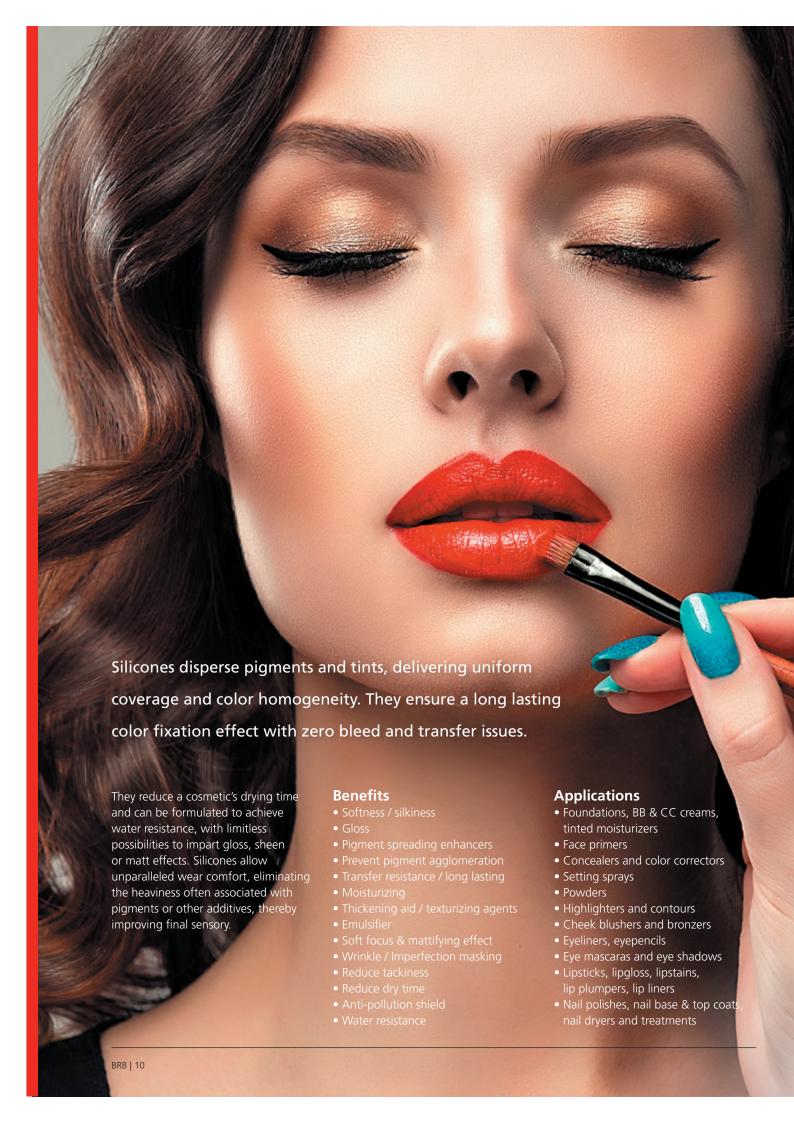
Good for

- Sensitive skin
- Acne treatments
- Oil free formulas
- Hypoallergenic applications

smoothness A (base) tackiness spreadability greasiness B (5% BRB PMS-5) shine



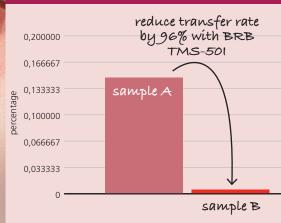
Immediate visibly reduction of fine lines and wrinkles. Skin close-up (x 1000)



The perfect color formula can be remarkably improved by adding silicones, which ensure the right coverage, confer long lasting and condition skin

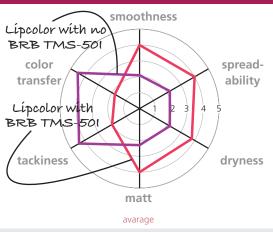
Color. cosmetics

COLOR TRANSFER RATE



No color transfer. Reduction of transfer effect after 10 min. Sample A: lipcolor with no BRB TMS-50I. Sample B: lipcolor with 30% BRB TMS-50I

SENSORY RESULTS



Sensory results: Smoothness, Good spreadability, Matt result, Reduce dry time, Reduce tackiness

Product

Hair hermal protection Wet / dry combing Frizz reduction lair styling **VOLATILE FLUIDS** CM 40, CM 50, CM 56-S, CM 60 * DM 0.65, DM 1, DM 1.5, DM 2 × DM 55, DM 66, 1417 * **DIMETHICONE FLUIDS** DM 3 - 20 DM 50 - 1000 DM 5000 - 100000 PHENYL MODIFIED SILICONES **PTM 20** * * **GUM BLENDS** 1735, 1744, 1755 1834, 1844, 1934 * * * * 1736, 1740, 1860 * ** * * 1819 * ** * * 1859 * ** * 1861 SILICONE COPOLYOLS 526 ᅕ × 423 6340, 6341 П 6373 **SILICONE EMULSIONS** 9719 1018 * * П 1288, 1292 * 1298 * 5446 *** * 5834 **AMODIMETHICONES** SF 240, SF 430 **ALKYL DIMETHICONES** 2835 Caprylyl Methicone 2836 **SILICONE RESINS** TMS, TMS-50C, TMS-50I, TMS-30D ***

Skin care

BRB PRODUCT

VOLATILE FLUIDS

CM 40, CM 50, CM 56-S, CM 60 DM 0.65, DM 1, DM 1.5, DM 2

DM 55, DM 66, 1417

DIMETHICONE FLUIDS

DM 3 - 20

DM 50 - 500

DM 1000 - 5000

PHENYL MODIFIED SILICONES

PTM 20

GUM BLENDS

1735, 1744, 1755

1834, 1844, 1934

1736, 1740, 1860

1819

1859

1861

CROSSPOLYMERS

SG 106, SG 116, SG 117

SG 506, SG 516, SG 517
SILICONE COPOLYOLS

523

526

423

6340, 6341

6373

SILICONE EMULSIONS

9719

ALKYL DIMETHICONES

2835

Caprylyl Methicone

2836

SILICONE RESINS

PMS-2, PMS-5

TMS-50I, TMS-50C, TMS-30D

★★ optimal suited

selector

| _ | applic | ations | | benefits | | | | | | | | |
|-----------------|--------|----------|---------------|--------------|---|----------------|----------------|---|------------------|---------------------------------------|-----------------|------------------|
| Face / body | AP DEO | Sun care | Shower / bath | Moisturizing | Softness | Anti whitening | Thickening aid | Enhance spreading | Reduce tackiness | Emulsifier | Reduce dry time | Water resistance |
| | | | | | | | | | | | | |
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| Colon | applications | | | benefits | | | | | |
|---|--------------|--------------------|---------|----------------------|-------|-------------------|---------------------|------------|------|
| Color cosmetics | ıns | Anhydrous products | S | Softness / Silkiness | | Pigment spreading | Fransfer resistance | ier | |
| BRB PRODUCT | Emulsions | Anhydr | Powders | Softnes | Gloss | Pigmen | Transfe | Emulsifier | Matt |
| VOLATILE FLUIDS | | | | | | | | | |
| CM 40, CM 50, CM 56-S, CM 60 | | | | * | | * | | | |
| DM 0.65, DM 1, DM 1.5, DM 2 DM 55, DM 66, 1417 | H | | H | * | | * | | | |
| DIMETHICONE FLUIDS | - | | | ^ | | ^ | | | |
| DM 3 - 20 | | | | * | | * | | | |
| DM 50 - 1000 | • | - | • | * | * | * | | | |
| DM 5000 - 100000 | | | | * | * | | | | |
| PHENYL MODIFIED SILICONES | | | | | | | | | |
| PTM 20 | | | | * | *** | *** | | | |
| GUM BLENDS | | | | J. | | | | | |
| 1735, 1744, 1755 1834, 1844, 1934 | | | | * | * | | * | | |
| 1736, 1740, 1860 | H | | H | * * | * | | * * | | |
| 1819 | | | | * | | | * | | |
| 1859 | - | | | <u>^</u> | * | * | * | | |
| 1861 | • | • | • | * | * | * | * | | |
| CROSSPOLYMERS | | | | | | | | | |
| SG 106, SG 116, SG 117 | | | | ** | | * | * | | *** |
| SG 506, SG 516, SG 517 | | | | ** | | * | * | | ** |
| SILICONE COPOLYOLS | | | | | | | | J. | |
| 523 526 | | | | * | | | | ** | |
| 423 | H | | | * | | | | ** | |
| 6340, 6341 | | | | ★ | | | | 森 | |
| 6373 | - | | | * | | | | ** | |
| ALKYL DIMETHICONES | | | | | | | | | |
| 2835 | | | | * | * | ** | * | | |
| Caprylyl Methicone | | | | ** | ** | ** | * | | |
| 2836 | | | | * | | | ** | | |
| SILICONE RESINS | | | | | | - | | | |
| PMS-2, PMS-5 | | - | | ** | | *** | * | | ** |
| TMS, TMS-50C, TMS-50I, TMS-30D, Color lock | | • | | | | | *** | | |
| | | | | | | | | | |

Silicones for Personal Care | 13

Product overview

| BRB PRODUCT | INCI | | |
|---------------------------|---|--------------------|------------------|
| VOLATILE FLUIDS | Fast evaporation solvents and light emollients | Viscosity (cSt) | Refractive index |
| CM 40 | Cyclotetrasiloxane | 2.4 | 1.394 |
| CM 50 | Cyclopentasiloxane | 4 | 1.397 |
| CM 56-S | Cyclopentasiloxane (and) Cyclohexasiloxane | 6 | 1.398 |
| CM 60 | Cyclohexasiloxane | 6.8 | 1.402 |
| DM 0.65 | Disiloxane | 0.65 | 1.375 |
| DM 1 | Trisiloxane | 1 | 1.382 |
| 1417 | Dimethicone (and) Trisiloxane | 1.5 | 1.389 |
| DM 1.5 | Dimethicone | 1.5 | 1.387 |
| DM 2 | Dimethicone | 2 | 1.389 |
| DM 55 | Dimethicone | 3.3 | 1.394 |
| DM 66 | Dimethicone | 6 | 1.395 |
| DIMETHICONE | Soft emollients for the right spreadability | Viscosity | Refractive |
| FLUIDS | | (cSt) | index |
| DM 3 | Dimethicone | 3 | 1.392 |
| DM 5 | Dimethicone | 5 | 1.396 |
| DM 6 | Dimethicone | 6 | 1.397 |
| DM 10 | Dimethicone | 10 | 1.399 |
| DM 20 | Dimethicone | 20 | 1.400 |
| DM 50 | Dimethicone | 50 | 1.402 |
| DM 100 | Dimethicone | 100 | 1.403 |
| DM 200 | Dimethicone | 200 | 1.403 |
| DM 350 | Dimethicone | 350 | 1.403 |
| DM 500 | Dimethicone | 500 | 1.403 |
| DM 1000 | Dimethicone | 1,000 | 1.403 |
| DM 5000 | Dimethicone | 5,000 | 1.403 |
| DM 10000 | Dimethicone | 10,000 | 1.403 |
| DM 12500 | Dimethicone | 12,500 | 1.403 |
| DM 30000 | Dimethicone | 30,000 | 1.403 |
| DM 60000 | Dimethicone | 60,000 | 1.403 |
| DM 100000 | Dimethicone | 100,000 | 1.404 |
| PHENYL MODIFIED SILICONES | Enhance gloss with good pigment compatibility | Viscosity (cSt) | Refractive index |
| PTM 20 | Phenyl Trimethicone | 22.5 | 1.460 |
| GUM BLENDS | Excellent conditioners with silky touch | Viscosity (cSt) | Gum (%) |
| 1735 | Cyclopentasiloxane (and) Cyclotetrasiloxane (and) Dimethiconol | 5,500 | 14 |
| 1744 | Cyclotetrasiloxane (and) Dimethiconol (and) Cyclopentasiloxane | 7,500 | 18 |
| 1755 | Cyclotetrasiloxane (and) Cyclopentasiloxane (and) Dimethiconol | 7,500 | 16 |
| 1834 | Cyclopentasiloxane (and) Dimethiconol | 6,000 | 15 |
| 1844 | Cyclopentasiloxane (and) Dimethicone | 6,000 | 15 |
| 1934 | Cyclopentasiloxane (and) Dimethiconol | 10,000 | 15 |
| 1736 | Dimethicone (and) Dimethiconol | 4,000 | 13 |
| 1740 | Dimethicone (and) Dimethiconol | 1,500 | 12 |
| 1860 | Dimethicone (and) Dimethiconol | 4,500 | 15 |
| 1819 | Dimethicone | 3,300 | 14 |
| 1859 | C11-13 Isoparaffin (and) Dimethicone | 11,000 | 22 |
| 1861 | C11-13 Isoparaffin (and) Dimethiconol (and) Isohexadecane (and) Dimethicone | 16,000 | 26 |
| BRB 14 | | | |

| | INC | 71 |
|-------------|-------|----|
| BRB PRODUCT | 11/1/ | ωI |

| CROSS- POLYMERS | Velvety, powdery and mattifying touch | Viscosity (Cst) | Cross-polymer (%) | |
|---------------------------|--|-----------------------|-----------------------|------------------|
| SG 106 | Cyclopentasiloxane (and) Dimethicone/Vinyl Dimethicone Crosspolymer | 30,000 | 11 | |
| SG 116 | Cyclopentasiloxane (and) Dimethicone/Vinyl Dimethicone Crosspolymer | 55,000 | 12 | |
| SG 117 | Cyclopentasiloxane (and) Dimethicone/Vinyl Dimethicone Crosspolymer | 10,000 | 6 | |
| SG 506 | Dimethicone (and) Dimethicone/Vinyl Dimethicone Crosspolymer | 30,000 | 14 | |
| SG 516 | Dimethicone (and) Dimethicone/Vinyl Dimethicone Crosspolymer | 30,000 | 11 | |
| SG 517 | Dimethicone (and) Dimethicone/Vinyl Dimethicone Crosspolymer | 10,000 | 10 | |
| SILICONE COPOLYOLS | Cold processable emulsifiers/ co-emulsifiers for long stability emulsions | Viscosity (cSt) | Calculated HLB | Water solubility |
| 523 | PEG/PPG-18/18 Dimethicone | 2,000 | 8 | Yes |
| 526 | PEG-12 Dimethicone | 300 | 13 | Yes |
| 423 | Cetyl PEG/PPG-10/1 Dimethicone | 1,250 | 5 | No |
| 6340, 6341 | PEG-10 Dimethicone | 600 | 4.5 | No |
| 6373 | Cyclopentasiloxane (and) PEG/PPG-18/18 Dimethicone | 30 | 2 | No |
| SILICONE EMULSIONS | Supreme conditioners for hair care | Emulsifier type | Particle size (µm) | Silicone (%) |
| 9719 | Dimethicone (and) Laureth-4 (and) Laureth-23 (and) Salicylic Acid | Non-ionic | <1 (macro) | 50 |
| 1018 | Dimethiconol (and) TEA-dodecylbenzenesulfonate | Anionic | 0.6 (macro) | 60 |
| 1288, 1292 | Amodimethicone (and) Trideceth-12 (and) Cetrimonium chloride | Cationic | <1 (macro) | 35, 50 |
| 1298 | Amodimethicone (and) Trideceth-7 (and) Trideceth-5 (and) Propylene Glycol (and) Trideceth-12 | Non-ionic | <0.1 (micro) | 20 |
| 5446 | Silicone Quaternium-17 (and) Trideceth-7 (and) Trideceth-5 | Non-ionic | <0.1 (micro) | 15 |
| 5834 | Phenyl Trimethicone (and) Laureth-4 (and) Silicone Quaternium-17 (and) Laureth-23 | Non-ionic | <0.1 (micro) | 17 |
| AMODIMETHICONES | High stability oils for hair dyed protection | Viscosity (cSt) | N content (%) | |
| SF 240 | Amodimethicone | 4,000 | 0.2 | |
| SF 430 | Amodimethicone | 3,000 | 0.4 | |
| ALKYL DIMETHICONES | Organic compatible emollients with unique sensory | Viscosity (cSt) | Refractive index | |
| 2835 | Cetyl Dimethicone | 45 | 1.440 | |
| Caprylyl Methicone | Caprylyl Methicone | 3 | 1.413 | |
| 2836 | Stearyl Dimethicone (and) Octadecene | 100 | 1.447 | |
| SILICONE RESINS | Mattifying and soft focus powder agents | Particle size (µm) | Resin (%) | |
| PMS-2 | Polymethylsilsesquioxane | 2 | 100 | |
| PMS-5 | Polymethylsilsesquioxane | 5 | 100 | |
| SILICONE RESINS | Long lasting emollients and water repellents | Viscosity (cSt) | Refractive index | Resin (%) |
| TMS | Trimethylsiloxysilicate | - | - | 100 |
| TMS-50C | Cyclopentasiloxane (and) Trimethylsiloxysilicate | 200 | 1.405 | 50 |
| TMS-50I | Isododecane (and) Trimethylsiloxysilicate | 10 | 1.420 | 50 |
| TMS-30D | Dimethicone (and) Trimethylsiloxysilicate | 700 | 1.409 | 30 |
| BRB Color lock | Isododecane (and) Trimethylsiloxysilicate (and) Dimethicone | 4,000 | 1.415 | 25 |
| | | | | |





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