AMBITION / FLEXIBILITY / PASSION / INNOVATION

Silicones for Home and Car Care

BRB International B.V.
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Silicones

What are we going to discuss?

Car Care Surface Care

Wash and Rinse Aid
Exterior Car polish
Windscreen & glass cleaners
Tire/Rim Care
Interior Trim/Dashboard
Exterior Trim
Leather conditioners

Home Care Surface Care

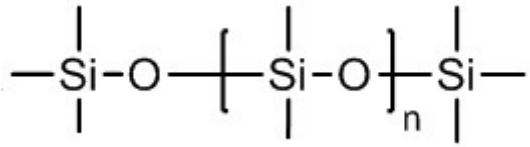
Furniture and wood polishes
Floor polish
Metal/stainless steel polish
Shoe & Leather care
Glass cleaners
Carpet cleaning products
Tile grout sealers
Antistatic solutions

Home Care Laundry Care

Laundry detergents additives
Fabric softeners additives
Dry cleaning

Characteristics of silicones

CHARACTERISTIC	BENEFIT
Low surface tension	Spreads on most surfaces
Strong Si-O & Si-C bonds	UV, oxidative, thermal & chemical stability
High R.I:(1.375 -1.403)	Gloss
Low intermolecular forces (high chain flexibility)	Lubricity & high permeability, low surface friction
Methyl groups	Water repellency
Low Glass Transition	Liquids at high molecular weight



Why use silicones in Car&Home Care?

- Ease of application - lubricant
- Polish cleaning ability - increase surface wettability
- Ease of polishing - lubricant, less effort to polish
- Streakability - reduces “streaking” of polish

- Gloss / Shine – high Refractive Index
- Increase colour intensity (depth of gloss)
- Surface protection - durability & detergent resistance
- Water repellency – long lasting
- Surface smoothness/slip – more difficult for dirt to adhere

What is a polish?

Polish = a temporary coating that enhances and protects the substrate to which it is applied.

Enhances by cleaning and increasing gloss/color intensity.

Protects by depositing a barrier film that repels water and gives a degree of dirt repellency.

A polish does not have to come in a form of a paste or gel. It can also be in the form of a sprayable liquid.

Car Care – Surface Care

- Wash & Rinse Aids
- Exterior Polishes & Waxes
- Windscreen & Glass Cleaners
- Tire/Rim Care
- Interior Trim/Dashboard Care
- Exterior Trim Care
- Leather Care

Home Care – Surface Care

- Furniture and wood polishes
- Floor polish
- Metal/stainless steel polish
- Shoe & Leather care
- Glass cleaners
- Carpet cleaning products
- Tile grout sealers
- Antistatic solutions

Home&Car Care - consumer requirements

- **Ease of use**
- **Enhancement of color, gloss**
- **Lasting protection**
- Water repellency
- **Dirt repellency**
- Self-cleaning or **easy re-cleaning** ability

Silicones for the Home&Car Care Industry

Silicone Oils

BRB Silicone Oils 5, 10, 20, 50, 100, 350, 1000, 12.500, 60.000 cSt

Silicone Emulsions

BRB Sempure 35, BRB Sempure 60, BRB Sempure 66
BRB Sempure HV 6500, BRB Sempure 1997

Aminofunctional Oils

BRB AF 989 NEW, BRB SF 240, BRB SF 315, BRB SF 430, BRB QF 100 NEW

Aminofunctional Emulsions

BRB Sempure 3733, BRB Sempure 135, BRB Sempure 152 NEW,
BRB Sempure 230, BRB Sempure 270

Specialty Emulsions

BRB Sempure 330, BRB Sempure 422

Silicones for the Home&Car Care Industry - continued

Volatile Silicones

BRB CM 40, BRB CM 50, BRB Silicone oil 0,65, 1, 1.5, 2, 3 cst

Silicone Glycols

BRB 523, BRB 526, BRB 6340, BRB 431

Silicone resins

BRB RD 50 NEW, BRB VPR 100 NEW

Paintable Silicones

BRB Sempure 5332, BRB Alkyl Aryl Fluid

Silicone antifoams

BRB Akasil TG 10/20/30, BRB Akasil LD 20

Silicone oils & emulsions - range

BRB Sempure 35 & 60
35% or 60% non-ionic emulsion of mid viscosity PDMS for general purpose polish formulations.

BRB Sempure 66
60% non-ionic emulsion of low viscosity PDMS for general purpose polish formulations. Great spreadability and ease of use.

BRB Sempure HV 6500
60% non-ionic emulsion of medium & high viscosity PDMS blend for premium polish formulations. Optimized balance between ease of application, spreading, gloss & durability.

BRB Sempure 1997
55% non-ionic emulsion of high viscosity PDMS for superior shine and long durability

BRB Silicone oils 5, 10, 20, 50, 100, 350, 1.000, 12.500, 60.000 cSt
For customers who want to emulsify by themselves and fine tune their own emulsions

Silicone Oils - formulating

Formulation properties

Oil soluble, not water soluble
Medium viscosity: easier application & emulsification
Higher viscosity: better protection & conditioning & defoaming properties

Can be formulated into

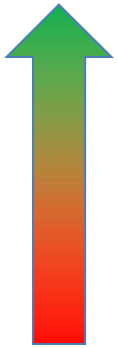
Solvent in water emulsions, usually 50-1000 cSt PDMS

Water in solvent - can include high viscosity fluids

Polish formulations - use a combination of high/medium viscosity fluids to optimize benefits

Viscosity	100 / 350	1000	12.500 / 60.000
Ratio	3	1	1
Benefit	Ease of use	Gloss	Durability

Silicone Oils – optimization of properties

Viscosity	Gloss	Durability / Protection	Wetting / Spreading	Overall ease of use
PDMS(50cs) PDMS(350cs) PDMS(1000cs) PDMS(12500cs) PDMS(60000cs)				

BRB Sempure 66

Properties

- 60% active, macro emulsion of low viscosity silicone oil
- Non-ionic emulsifier system
- Small particle size (<1 micron)

Benefits

- Easy to formulate into aqueous systems
- Low gloss
- No streaking
- Outstanding spreading and wetting properties

Typical dosage: 3.0-10%

BRB Sempure HV 6500

Properties

- 60% active, macro emulsion of medium & high viscosity silicone oils
- Non-ionic emulsifier system
- Small particle size (<1 micron) giving good stability and outstanding dilution properties

Benefits

- Easy to formulate into aqueous systems
- Base ingredient of a wide range of polish formulations
- 2in1 product – medium viscosity silicone oil provides good wetting and spreading while high viscosity one is responsible for increased gloss and durability

Typical dosage: 5.0-30%

BRB Sempure 1997

Properties

- 55% active, macro emulsion of high viscosity silicone oil
- Non-ionic emulsifier system
- Small particle size (<1 micron)

Benefits

- Easy to formulate into aqueous systems
- Superior gloss and brightness
- Excellent color enhancement
- Good water repellency and durability

Typical dosage: 3.0-10%

Silicone oils & emulsions - benefits

- **Ease of application** – streak & smear resistant
- **Improved cleaning** - low surface tension, increases surface wetting.
- **Depth of Gloss / Color** – high Refractive Index
- **Water repellency** – presence of methyl groups promotes water beading
- **Slip** - gives a smooth/lower friction surface

Silicone oils & emulsions – applications

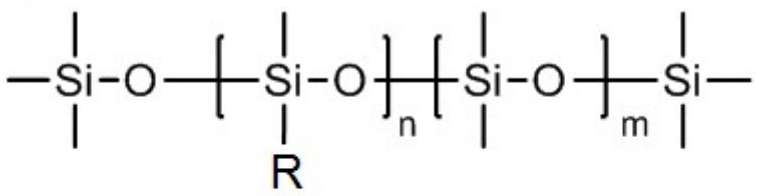
- Rubber, vinyl, plastic and leather protectants
- Furniture cleaners and protectants
- Hard surface cleaners and protectants
- Spray and wipe polishes (quick detailers)
- Car shampoos
- Paint polishes, waxes and sealants

Dosage of silicone emulsion(s) in the formulation depends on the type of emulsion and the type of formulation. It can vary from 5% to 35%.

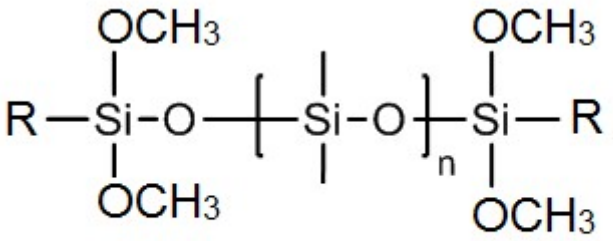
Dosage of silicone oil(s) varies from 1% to 15%.

Aminofunctional silicones - properties

- Dimethicone backbone grafted with amino groups
- Polar amine groups effectively anchor the product to substrate -> physical attraction to negatively charged surfaces
- Reactive grades crosslink to form a polymer film with high detergent resistance and effective protection



R = $CH_2CH_2CH_2NHCH_2CH_2NH_2$



R = $CH_2CH_2CH_2NHCH_2CH_2NH_2$

Aminofunctional oils - range

		Viscosity at 25°C (cSt)	Nitrogen content (%w/w)
BRB SF 989[NEW]		25	
BRB SF 240		4000	0.2
BRB SF 315		1500	0.3
BRB SF 430		3000	0.4

Aminofunctional oils - properties

Characteristic		
Viscosity	Low	High
Amine Content	Low	High
Durability		
Hydrophobicity		
Gloss		

Quaternary aminofunctional oils - range

	Functional groups	Viscosity at 25°C (cSt)	Active content (%w/w)
BRB QF 100NEW	Terminal	4000	92

Aminofunctional emulsions - range

BRB Sempure 3733
40% cationic macro emulsion for extended durability and slip.

BRB Sempure 152 NEW
50% non-ionic macro emulsion of aminofunctional silicone polymer.

BRB Sempure 135
35% non-ionic micro emulsion for extended durability and good hydrophobic effect. Allows to formulate transparent products.

BRB Sempure 230
30% non-ionic micro emulsion of silicone quaternium polymer. Film former. Allows to formulate transparent products.

BRB Sempure 135 – for Car Care

Properties

- 35% active, micro emulsion of aminofunctional silicone
- Specifically developed for use in transparent, aqueous, hard surface cleaning & conditioning products
- Forms a protective layer on the treated surface to provide water repellency, increased gloss and durable protection

Benefits

- Easy to formulate into aqueous systems
- Remains transparent in most detergent formulations
- Beads-up water on surfaces
- Small particle size preventing residual smearing on the glass
- Imparts water repellency, increased gloss and durable protection
- Good slip effect

Typical dosage: 1.0-10%

BRB Sempure 230 – for Home Care

Properties

- 30% active, micro-emulsion of silicone quaternium polymer
- Specifically developed for cleaning formulations
- Offers shine and protection to ceramics, glass and painted surfaces

Benefits

- Excellent slip.
- Reduces formation of streaks and scale on tiles and glass
- Very easy to formulate into aqueous blends
- Very easy to formulate into transparent products
- Can also be used in car care formulations

Typical dosage: 0.5-3%

Aminofunctional Silicones - benefits

- **Ease of application -** streak resistant
- **Depth of Gloss / Color -** high Refractive Index
- **Strong hydrophobic effect -** water beading
- **Durability -** semi-permanent bonding to the substrate
- **Slip -** give a smooth/lower friction surface
- **Dirt repellency/easy cleaning** – due to smooth, hydrophobic surface

Aminofunctional Silicones - applications

- Rubber, vinyl, plastic and leather protectants – in combination with base silicone emulsions, dosage up to 5%
- Furniture and hard surface protectants – dosage up to 3%
- Glass cleaners and windscreen washers – dosage up to 1%
- Spray and wipe polishes (quick detailers) – in combination with base silicone emulsions, dosage up to 3%
- Spray waxes and sealants – Sempure 135, dosage up to 10%
- Car shampoos – Sempure 135, dosage up to 5%
- Paint polishes and waxes – dosage up to 10%

Specialty emulsions

BRB Sempure 330 - is a 30% active emulsion of a high molecular weight silicone urethane resin. It is used to improve water repellency, dirt resistance, gloss and softness in various formulations of hard surface and leather dressings. It provides long-lasting protection to a treated surface.

BRB Sempure 422 - is a 22% active microemulsion of phenyl functional silicone and a quaternary ammonium functional silicone. It combines the gloss-boosting effect of phenyl-modified silicone with film-forming properties of silicone quat allowing formulation of transparent products with unique properties. It is an alternative to classic gloss increasing emulsions of high viscosity silicone oils.

BRB Sempure 330

Properties

- A 30% active emulsion of a high molecular weight silicone urethane resin
- Non-ionic emulsifier system
- Specifically developed for lasting protection

Benefits

- Hydrophobising film former
- Very good durability and resistance to elements
- Gloss improvement and streak free finish
- Especially suitable for leather protection
- Easy to formulate into aqueous blends

Typical dosage: 0.5-5%.

BRB Sempure 422

Properties

- 22% active, micro-emulsion of phenyl modified silicone and silicone quaternium polimer
- Non-ionic emulsifier system
- Preservative free

Benefits

- Imparts excellent gloss enhancing benefits
- Imparts slickness to a treated surface
- Improves wipe-off with „no streak” effect
- Easy to formulate into aqueous blends
- Can be formulated in transparent products

Typical dosage: 1-5%.

Volatile Fluids - range

BRB CM 50 - Cyclopentasiloxane, D5

BRB CM 40 - Cyclotetrasiloxane, D4

BRB Silicone oil 0.65cSt - Hexamethyldisiloxane

BRB Silicone oil 1cSt – Trisiloxane

BRB Silicone oils 1.5, 2, 3cSt - Dimethicone

Volatile Fluids - benefits

- Oil and alcohol solubility
- Volatile
- Non-greasy
- Good spreadability/wetting
- Leave no residue
- Colorless/odorless
- Safe for most common surfaces

Volatile Fluids - applications

- Polishes - replace solvents as carriers (for „solventless” solvent formulations)
- Tar and glue removers
- Rinse and drying aids
- Car waxes and sealants

Silicone Glycols - range

BRB 526

PEG-12 Dimethicone, emulsifier Si/W, HLB 13

BRB 523

PEG/PPG-18/18 Dimethicone, co-emulsifier W/Si, HLB 8

BRB 6340

PEG-10 Dimethicone, emulsifier W/Si, HLB 4.5

BRB 431

Modified trisiloxane, superspreader, surface tension depressant

BRB 526 – classic silicone glycol

Properties

- Silicone surfactant based on ethoxylated dimethicone
- Good wetting and surface tension reduction
- Water soluble

Benefits

- Improves spreading
- Antifogging and sheeting properties
- Reduces surface tension
- Can also be used in car care formulations

BRB 431 – trisiloxane superspreader

Properties

- Superspreading surfactant based on trisiloxane ethoxylate
- Outstanding surface tension reduction
- Water soluble

Benefits

- Improves spray coverage
- Excellent penetration, antifogging and sheeting properties
- Reduces surface tension already at very low dosage (0,1%)
- Can also be used in car care formulations

Silicone Glycols - benefits

- Foam booster / foam quality
- Water/alcohol dispersible
- Spreading, wetting agents
- Antifogging
- Emulsifiers, dispersing agents

Silicone Glycols - applications

- Designed for formulating stable water in silicone emulsions or emulsions in which volatile silicones make up the oil phase. Emulsions based on silicone glycols are less greasy than typical water in oil products
- Cleaners with antifogging properties
- Spreading additives in sprayable formulations

Silicone Resins - range

BRB RD 50 NEW

50% active silicone resin dispersion in solvent.

BRB VPR 100 NEW

100% active blend of silicones.

BRB RD 50 NEW

Properties

- 50% active dispersion of a high molecular weight silicone resin in a solvent
- Low viscosity, easy to handle

Benefits

- Excellent film former
- Excellent durability
- Wash-off and rub-off resistance
- High hydrophobicity

Typical dosage: 2-10%.

BRB VPR 100 NEW

Properties

- 100% active blend of silicones specially formulated as a concentrate for use in Home and Car Care
- Solvent-dilutable

Benefits

- Good heat stability
- Good wetting and spreading
- Excellent durability and water-resistance
- High gloss
- Dilutable with many popular solvents i.e. white spirits, petroleum hydrocarbons, low aromatic hydrocarbons or volatile silicones

Typical dilutions: 1:2-1:9

Silicone Resins- benefits

- Excellent film formers
- Wash-off and rub-off resistant
- Extraordinary water resistance
- Great durability

Silicone Resins - applications

- Leather protectants (shoes, upholstery, etc.)
- Exterior plastic and vinyl protectants
- Tire and rubber protectants
- Car waxes and paint sealants

Paintable Silicones

These silicones are capable of being over-painted. They do not require unusual or extraordinary cleaning operations prior to painting, plating or bonding. They are used in professional polishes in car body shops or custom paint shops.

BRB Sempure 5332
Paintable 50% non-ionic emulsion of alkyl aryl silicone

BRB Alkyl Aryl Fluid
For customers who want to emulsify by themselves

Also volatile fluids are over-paintable:

BRB CM 40
BRB CM 50
BRB Silicone oil 0.65 cst

Silicone Antifoams

BRB Akasil TG 10, 20, 30

- Standard grade, silicone based antifoam emulsions
- Suitable for various home care applications
- Suitable for products with high salinity
- Good high temperature performance
- TG 10 : 14% active content
- TG 20 : 22% active content
- TG 30 : 30% active content

Car Care - Product selector guide

	Water based	Solvent based	Wash and Rinse Aid	Exterior car polish/ conditioner	Glass Care	Tire/ Rim Care	Interior Trim/ Dashboard	Leather
Silicone oils		✓	X	X		X	X	X
Silicone emulsions	✓		X	X		X	X	X
Aminofunctional silicones (oils/emulsions)	✓	✓	X	X	X	X	X	
Alkyl Aryl silicones	✓	✓		X			X	
Silicone resins		✓		X		X		X
Volatile silicones		✓	X			X	X	X
Silicone glycols	✓	✓			X		X	X

Home care - product selector guide

Product	Water based	Solvent based	Leather Care	Furniture Care	Hard Surface Care	Glass Care
Silicone oils		✓	X	X		
Silicone emulsions	✓		X	X	X	X
Volatile silicones		✓	X	X		
Silicone glycols	✓	✓		X	X	X
Aminofunctional silicones (oils/emulsions)	✓	✓	X	X	X	X
Silicone resins		✓	X	X		
Antifoams	✓				X	

Customer support

Formulation support

We can provide examples of formulations using our silicones

Ready-to-use products

BRB PTFE Clean & Shine

Polish for 2nd hand cars (abrasive)

BRB New Car Polish

Polish for new cars (mild)

BRB Glass Water Repellant

Windscreen polish

Laundry Care – product range & applications

Silicone antifoams

BRB Akasil TG 10/20/30

BRB Akasil 20LD

Foam control in liquid detergents & fabric conditioners (filling aid).
Antifoam systems for powder detergents (post-addition or spray on).

Silicone Glycols

BRB 526

Wetting and spreading agent for liquid laundry sachets (monodose).

Volatile Silicones

BRB CM 50

Dry cleaning solvent, alternative to Tetrachloroethylene.

Laundry Care – product range & applications

Silicone Emulsions as performance additives for fabric softeners

Base option:

Products - **BRB Sempure 35, BRB Sempure 60**.

Benefit - soft touch effect.

Standard option:

Products - **BRB Sempure 3733, BRB Sempure 152** NEW.

Benefit - improved soft touch effect, anti-wrinkle and easy ironing properties.

Top option:

Products - **BRB Sempure 270**.

Benefit - the best soft touch effect, anti-wrinkle, easy ironing and good rewetting properties.

BRB Akasil 20LD – for Laundry Care

Properties

- 20% active, high performance, silicone based antifoam emulsion
- Optimized for use in surfactant-rich formulations and environments, as encountered in the detergent and textile industries

Benefits

- Effective and durable over a wide pH range
- Outstanding reliability and versatility
- Suitable for products with high salinity
- Available in easy-to-use emulsion form
- Good high temperature performance
- Excellent knockdown as well as defoaming performance

BRB Sempure 270 – for Laundry Care

Properties

- 70% active, micro-emulsion of quat polyether terpolymer
- Specifically developed for fabric treatment
- Recommended for use in rinse-cycle laundry products
- Compatible with organic softeners (e.g. esterquats)
- Typical formulation contains 2.5% BRB Sempure 270 and 15% organics
- Post-addition with moderate agitation

Benefits

- Deposits onto fabric from the rinse cycle
- Enhance softness (silicones have a silky feel attenuating the 'greasier' organics)
- Promotes ease ironing
- Improve water absorbency

Laundry Care - product selector guide

Product	Liquid laundry detergent	Liquid laundry sachets	Powder laundry detergents	Fabric softeners	Dry Cleaning
BRB Akasil TG 10, 20, 30	X			X	
BRB Akasil 20LD	X				
BRB 526		X			
BRB Sempure 35 & 60				X	
BRB Sempure 3733, 152 & 270				X	
BRB CM 50					X


AMBITION / FLEXIBILITY / PASSION / INNOVATION
BRB
Powerful like a major,
flexible like a formulator
BRB International BV
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