



**MOMENTIVE**  
performance materials

# Home Care



## Our Program

Momentive Performance Materials, origins from the 1930's, combines the history of industrial pioneers in silicone chemistry, supplying innovative products developed on that know-how.

Silicone technology makes the difference to polish and household products, the evidence is plain to see and feel. It's the difference between "car wax" that is tough to remove and/or leaves streaks and the one that can be applied and easily removed, leaving brilliant and long-lasting shine.

It makes the difference between wearing soft and comfortable fabrics against ones that are not.

Momentive Performance Materials makes possible these noticeable performances.

Momentive products:

- in laundry improve softness, comfort and "feel" of press, of clothes;
- in furniture polishes deliver a protective, "see through" high-gloss shine with little elbow grease;
- in window cleaners improve lubricity and easy Wipe-off;
- in tire dressing create "new tire" look;
- in textile products brings water and stain repellents;
- in aerosol and liquid starches act as non-sticking and easy ironing agents.

In Momentive Performance Materials, we develop products that help to add quality and value to an increasing array of products for consumer household, car care, industrial and institutional applications.

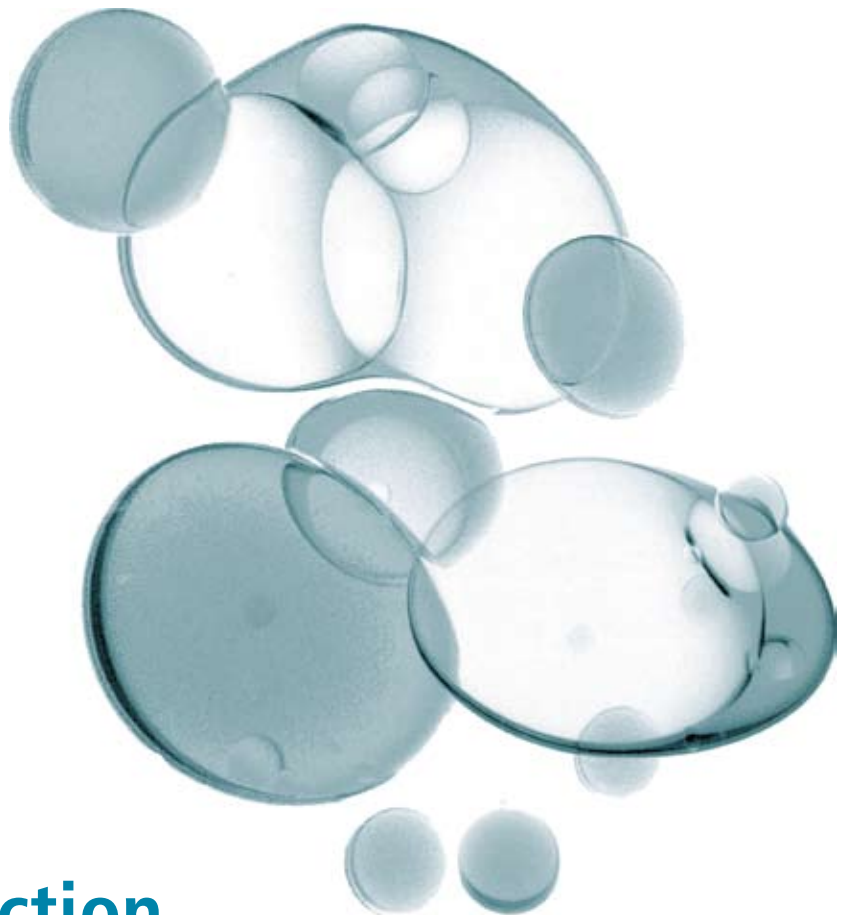
As a proven global supplier of specialty silicones, we would very much like to work with you. ...taking your products to a very special competitive edge...

## Selector Tool

This brochure contains a selection of Momentive Performance Materials products for the home-, industrial-, institutional- and automotive- care industries. Due to the vast variety of grades available we had to self restrict ourself to the provided selection. More information is available through our sales offices, sales representatives and our technical service team.

Table 1A & 1B are intended as easy selection tool to identify the applications and properties the products will have the highest probability to succeed. An overview about properties and physical data of the presented grades is provided in table 2A & 2B.

# Gloss, Penetration & Protection



## Typical Application / Table 1A

PRODUCT	CAR & FURNITURE POLISH					SHOE POLISH			HARD SURFACE CLEANER						LAUNDRY & FABRIC						SPRAY STARCH		LUBRICANT & PENETRANT							
	Rub Out & Levelling	Gloss & Depth of Color	Durability & Protection	Water Formula table	Overpaintable	Shine	Durability & Protection	Foam Control	Gloss & Shine	Water repellency	Wetting & Penetration	Sheeting & Anti fog	Protection	Foam Control	Stain Removal	Anti-wrinkle	Ease of Ironing	Durability	Fast-Dry	Hydrophilicity	Hydrophobicity	Reflectance	Foam Control	Ease of Ironing	Anti-wrinkle	Hydrophilicity	Penetration	Lubricity	Mineral Oil Compatible	
Polydimethylsiloxane																														
SF 1202	X															X								X			X			
Baysilone* M 3 to 20 SF96-5 to 20	X																										X			
Baysilone M 50 to 1000 SF96-50 to 1000	X					X																						X		
Baysilone M 5000 to 2000000 Viscasil*-5M to 600M		X					X																					X		
Emulsion D	X		X			X		X												X			X				X			
Emulsion TP 3952	X		X			X		X												X			X				X			
Emulsion SM 2725E		X	X																	X										
Emulsion SM 2112		X	X																	X			X	X						
Baysilone OF OC 110	X		X																											
Alkyl-/Aryl-/Phenyl functional Polysiloxanes																														
Formasil* 433	X				X																							X		
Baysilone GPW 2233	X				X																						X	X	X	
Baysilone PN 200					X																						X	X		
Baysilone PH 300					X																						X	X		
SF 1632					X																									
SF 1642					X																									
Baysilone OF TP 3907					X	X	X																				X	X		
Baysilone TP 3934						X	X	X							X							X					X			
Silicone Polyether Copolymer																														
Silwet* L-7500	X				X					X		X															X		X	
Formasil L-7280			X						X	X																	X			
SF 1188A			X						X	X									X				X	X	X	X				
Silwet L-7600			X						X	X									X					X						
Silwet L-7608			X						X	X									X					X						
SF 1528			X						X																		X			
TP 3856			X						X										X					X						
Hydrolytically stable Superspreaders																														
Silwet Hydrostable* Y-17110	X		X						X	X		X							X	X				X	X		X	X		
Silwet Hydrostable 611	X		X						X	X		X							X	X				X	X		X	X		
Silwet Hydrostable Y-17112	X		X						X	X		X							X	X				X	X		X	X		
Silwet Hydrostable 68	X		X						X	X		X							X	X				X	X		X	X		
Silwet Hydrostable 212	X		X						X	X		X							X	X				X	X		X	X		

The product application grid links typical performance attributes in specific applications to a selection of Momentive Performance Materials products. Since this is a very general categorization the formulation and application compatibility has to be confirmed in each specific case:

x = Product is best suited for non-aqueous formulations or the oil phase of a water-in-oil or oil-in-water dispersion.

x = Product is best suited for aqueous formulations or the water phase of a water-in-oil or oil-in-water dispersion.

## Typical Application / Table 1B

PRODUCT	CAR & FURNITURE POLISHES					SHOE POLISHES			HARD SURFACE CLEANERS					LAUNDRY & FABRIC CARE							SPRAY STARCH			LUBRICANT & PENETRANT					
	Rub Out & Levelling	Gloss & Depth of Color	Durability & Protection	Water Formula table	Overpaintable	Shine	Durability & Protection	Foam Control	Gloss & Shine	Water repellency	Wetting & Penetration	Sheeting & Anti fog	Protection	Foam Control	Stain Removal	Anti-wrinkle	Ease of Ironing	Durability	Fast-Dry	Hydrophilicity	Hydrophobicity	Reflectance	Foam Control	Ease of Ironing	Anti-wrinkle	Hydrophilicity	Penetration	Lubricity	Mineral Oil Compatible
Amino Functional Siloxanes																													
SF 1705			X			X																							
SF 1706			X			X	X		X			X																X	
Baysilone* OF TP 3309			X			X	X																						
Formasil* 889			X			X		X	X			X			X	X			X					X	X	X			
Formasil 410			X			X	X		X			X			X	X	X		X		X		X	X					
SM 2059 NPF			X			X	X		X			X			X	X	X		X	X		X	X		X	X			
Silicone Resins																													
SR 107			X			X																							
SR1000			X			X																							
SS 4267			X			X						X																	
SS 4230			X			X																			X				
SS 4098			X			X		X																					
Antifoam																													
AF 100%												X										X							
SAG* 8400												X										X							
SAG 8300												X										X							
SAG 387												X										X							
Antifoam CF-55												X										X							
AF 9010/9020/9030 E												X										X							
Antifoam Y-14765												X										X							
Antifoam Y-14865												X										X							

The product application grid links typical performance attributes in specific applications to a selection of Momentive Performance Materials products. Since this is a very general categorization the formulation and application compatibility has to be confirmed in each specific case:

X = Product is best suited for non-aqueous formulations or the oil phase of a water-in-oil or oil-in-water dispersion.

X = Product is best suited for aqueous formulations or the water phase of a water-in-oil or oil-in-water dispersion

## Typical Properties / Table 2A

PRODUCT	TYPE	VISCOSITY @25°C	SPECIFIC GRAVITY @25°C	FLASH POINT (CLOSED CUP) °C	REFRACTIVE INDEX	ACTIVE %	APPEARANCE
Polydimethylsiloxane							
SF 1202	Fluid	4 mm <sup>2</sup> ·s <sup>-1</sup>	0.96	77	1.395	100	Clear colorless
Baysilone* M 3 to 20 SF96-5 to 20	Fluid	3 to 20 mPa·s 5 to 20 mm <sup>2</sup> ·s <sup>-1</sup>	0.92 to 0.95	62 to 240	1.394 – 1.400	100	Clear colorless
Baysilone M 50 to 1000 SF96-50 to 1000	Fluid	50 to 1000 mPa·s 50 to 1000 mm <sup>2</sup> ·s <sup>-1</sup>	0.96 to 0.97	280 to 320	1.400 – 1.404	100	Clear colorless
Baysilone M 5000 to 2000000 Viscasil*-5M to 600M	Fluid	5 to 2000 Pa·s 5 to 600 000 mm <sup>2</sup> ·s <sup>-1</sup>	0.07 to 0.98	320	1.404	100	Clear colorless
Emulsion D	Emulsion	-	0.99	>100 <sup>a</sup>	-	35	
Emulsion TP 3952	Emulsion	640 - 2500 mPa·s	0.99	>100 <sup>a</sup>	-	60	Milky white
Emulsion SM 2725E	Emulsion	29 - 7000 mPa·s	0.99	>100 <sup>a</sup>	-	50	Milky white
Emulsion SM 2112	Emulsion	20 mPa·s	0.99	>100 <sup>a</sup>	-	35	Milky white
Baysilone OF OC 110	Solution	10 mm <sup>2</sup> ·s <sup>-1</sup>	0.80	>24	-	50	Clear
Alkyl / Aryl Polysiloxane							
Formasil* 433	Fluid	3 mm <sup>2</sup> ·s <sup>-1</sup>	-	110	1.413	100	Clear liquid
Baysilone GPW 2233	Fluid	100 mPa·s	0.97	>150	1.430	100	Translucent amber
Baysilone PN 200	Fluid	200 mPa·s	1.03	300	1.466	100	Clear liquid
Baysilone PH 300	Fluid	300 mPa·s	1.06	300	1.512	100	Clear liquid
SF 1632	Wax	-	0.85	135	-	100	Milky white
SF 1642	Pellet	-	0.85	135	-	100	Milky white
Baysilone OF TP 3907	Fluid	2500 mPa·s	1.02	>255	1.495	100	Light yellow
Baysilone OF TP 3934	Emulsion	600 - 2500 mPa·s	1.01	>100 <sup>a</sup>	-	60	Milky white
Silicone Polyether Copolymer							
Silwet L-7500	Fluid	140 mm <sup>2</sup> ·s <sup>-1</sup>	0.99	121	-	100	Clear, colorless amber
Formasil L-7280	Fluid	35 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	143	-	100	Clear, colorless
SF 1188A	Fluid	900 mm <sup>2</sup> ·s <sup>-1</sup>	1.04	82	-	100	Clear, amber
Silwet L-7001E	Fluid	1700 mm <sup>2</sup> ·s <sup>-1</sup>	1.02	97	-	100	Clear, amber
SF 1528	Fluid	250 mm <sup>2</sup> ·s <sup>-1</sup>	-	77	-	100	Hazy liquid
TP 3856	Fluid	500 mm <sup>2</sup> ·s <sup>-1</sup>	1.07	>150	-	100	Clear straw
Silwet L-7608	Fluid	35 mm <sup>2</sup> ·s <sup>-1</sup>	1.02	118	-	100	Clear, colorless
Silwet* Hydrostable* Y-17110	Fluid	25 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	116	-	100	Straw coloured
Silwet Hydrostable 68	Fluid	20 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	116	-	100	Straw coloured
Silwet Hydrostable 611	Fluid	50 mm <sup>2</sup> ·s <sup>-1</sup>	0.97	>116	-	100	Straw coloured
Silwet Hydrostable Y-17112	Fluid	25 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	116	-	100	Straw coloured
Silwet Hydrostable 212	Fluid	65 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	165	-	100	Yellow to amber

The product property grid links typical physical to a selection of Momentive Performance Materials products. These are typical product data values determined on commercial material whose properties might vary within the specification limits. Typical product data values should not be used as specifications. Assistance and specifications are available from Momentive Performance Materials.

<sup>a</sup> This is a water based product and starts to boil at ~100°C.

## Typical Properties / Table 2B

PRODUCT	TYPE	VISCOSITY @25°C	SPECIFIC GRAVITY @25°C	FLASH POINT (CLOSED CUP) °C	REFRACTIVE INDEX	ACTIVE %	APPEARANCE
<b>Amino Functional Siloxanes</b>							
SF 1705	Solution	300 mm <sup>2</sup> ·s <sup>-1</sup>	0.82	28	-	50	Clear colorless
SF 1706	Fluid	30 mm <sup>2</sup> ·s <sup>-1</sup>	0.99	95	-	100	Clear colorless
Baysilone* OF TP 3309	Fluid	200 mPa·s	0.98	90	-	100	Clear liquid
Formasil* 889	Emulsion	50 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	>100 <sup>a</sup>	-	23	Milky white
Formasil 410	Emulsion	50 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	>100 <sup>a</sup>	-	35	Milky white
SM 2059 NPF	Emulsion	20 mPa·s	0.99	>100 <sup>a</sup>	-	35	Milky white
<b>Silicone Resins</b>							
SR 107	Solution	20 mm <sup>2</sup> ·s <sup>-1</sup>	1.04	40	-	60	Clear liquid
SR1000	Powder	-	-	-	-	100	White
SS 4267	Fluid	300 – 700 mm <sup>2</sup> ·s <sup>-1</sup>	1.03	201	1.409	100	Clear colorless
SS 4230	Fluid	70 - 200 mm <sup>2</sup> ·s <sup>-1</sup>	1.05	77	1.406	100	Clear colorless
SS 4098	Solution	10 mm <sup>2</sup> ·s <sup>-1</sup>	0.9	20	1.409	50	Clear straw
<b>Antifoam</b>							
AF 100%	Fluid	2500 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	>300	-	100	Gray, translucent
SAG* 8400	Fluid	50000 mm <sup>2</sup> ·s <sup>-1</sup>	0.98	>350	-	100	Gray, translucent
SAG 8300	Fluid	200000 mm <sup>2</sup> ·s <sup>-1</sup>	0.98	>350	-	100	Gray, translucent
SAG 387	Concentrate	8000 mPa·s	1.02	>100 <sup>a</sup>	-	100	Creamy white
Antifoam CF-55	Concentrate	<3000 mm <sup>2</sup> ·s <sup>-1</sup>	1.02	>100 <sup>a</sup>	-	50	Milky white
AF 9010/9020/9030 E	Emulsion	1500 mPa·s	1.01	>100 <sup>a</sup>	-	10 / 20 / 30	Milky white
Antifoam Y-14765	Emulsion	1000 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	>100 <sup>a</sup>	-	20	Milky white
Antifoam Y-14865	Emulsion	1750 mm <sup>2</sup> ·s <sup>-1</sup>	1.00	>100 <sup>a</sup>	-	45	Milky white

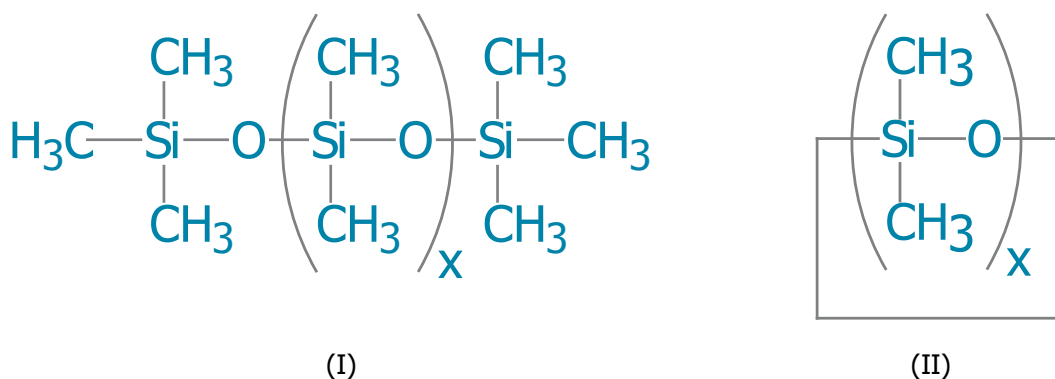
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<sup>a</sup> This is a water based product and starts to boil at ~100°C.

## Polydimethylsiloxane

Most commonly polydimethylsiloxanes (PDMS) are referred to if silicones are discussed. The polymer backbone of polydimethylsiloxane is composed of alternating silicon and oxygen atoms, where the remaining reaction sites at the silicon atoms are saturated with methyl groups - thus a metal organic polymer is created.

Linear (I) and cyclic (II) silicones are available. Cyclic silicones are volatile and are therefore perfectly suited as odorless solvents for linear silicone polymers.



PDMS possesses a very special combination of physical and chemical properties making it ideal for uses in the home care segment:

- Even at high molecular weights it is a free flowing liquid.
- It is water clear and colorless.
- It is highly UV-stable and weather resistant.
- It possesses excellent spreading characteristics.
- It exhibits exceptional release properties.
- It is hydrophobic, thus it acts as water repellent, however, it remains permeable to vapour steam.

Volatile silicone fluids like SF 1202, as well as linear polymers out of our Baysilone\* M-fluid and Viscasil\* product lines are our most widely used products in the HI&I industries. These products are major components in car-, furniture- and shoe-polish formulations. In these applications the lower viscosity Baysilone M-fluids provide ease of application, gloss and improve the rub-out, the higher viscosity Viscasil grades add durability, protection and depth of colour. Typical blend ratios are 2-4 parts of lower viscosity polydimethylsiloxane of 350 or 1000mPa·s with 1 part of high viscosity fluid of 30- 100Pa·s.

Volatile silicones are ideal solvents for polydimethylsiloxane fluids and can thus be used to adjust the viscosity of silicone-based polishes to make them applicable via e.g. pump spray or sponge.

For ease of use a selection of readily emulsified products is available. They are perfectly suited for the formulation of waterbased products.

Please consult table 1 for their physical properties and application areas and review the formulations provided in the formulary section of this brochure.

Baysilone Oil Emulsion D has been developed as stress corrosion cracking free polishing aid for plastic and rubber parts and is routinely tested on this property.

Baysilone OF OC 110 is a product specially designed to provide durability and detergent resistance to wax or polydimethylsiloxane based polish formulation.

**transparent,  
hydrophobic &  
weather resistant**



## Alkyl / Aryl Polysiloxanes

Modification of silicone fluids with alkyl and/or aryl groups makes them more compatible with organic materials such as mineral oils. While the siloxane backbone maintains the fluidity and surface activity of the material, the organo modification adds lubricity, higher organo compatibility and increased durability (see table 3).

Thus products like Baysilone\* GPW 2233 or Baysilone OF TP 3907 can be used to aid the dispersions of pigments or fillers, improve the levelling and durability of polishes or can act as lubricant and penetrant.

Formasil\* 433 is an alkyl functional trisiloxane. This grade is recommended for use in oil-based products at 1-10% by weight for surface tension reduction, improved spreading, coverage and penetration or compatibilisation. It can be used in applications such as tire or vinyl dressings, car polishes, shoe polishes or penetrating coatings.

Due to a higher refractive index phenyl- and aryl-functional silicones provide higher gloss levels than standard silicones. The reason is a higher reflectivity of the polish surface. Also they possess a better heat stability, which makes them particularly useful as dirt release coatings in heat sensitive applications, like ceramic cooktop polishes.

Therefore, alkyl and aryl functional silicone fluids are used as lubricants, as ingredients in paintable polishes and as additives to improve the gloss.

PRODUCT	TYPE	LUBRICITY	IMPROVES DURABILITY	ENHANCES GLOSS	PENETRATION	RELEASE	DISPERSING SOLIDS
Formasil 433	Alkyl	x			x		x
GPW 2233	Alkyl	x			x	x	x
PN 200	Phenyl	x		x		x	
PN 300	Phenyl	x		x		x	
SF 1632	Alkyl		x				
SF 1642	Alkyl		x				
OF TP 3907	Aryl/Alkyl	x	x	x		x	x
TP 3934	Aryl/Alkyl	x	x	x		x	x

Table 3: Product-performance selector guide for Momentive Performance Materials alkyl functional fluids.

## Silwet\* Polyether silicones

Silicone Polyethers belong to a special, versatile group of highly surface active, silicone based materials. They combine typical silicone properties with, depending on their organic modification, hydro- or lipophilicity.

These properties are best displayed by the Silwet-Triangle (see Plot 1). At each vertex is one of the three principal components: ethylene oxide, propylene oxide and silicone. Silwet surfactants are positioned throughout the triangle in accordance with their internal relative ratios of the respective ingredients.

Silicone contributes:                   lubricity, defoaming, surface tension reduction, sheeting & gloss.  
 Propylene oxide contributes:        Defoaming & oil solubility.  
 Ethylene oxide contributes:         Foaming, antifog & water solubility.

Thus they are able to decrease the surface tension of aqueous and organic solvents dramatically at very low addition levels. They also can improve the wetting and penetration of formulations, aiding the active ingredients to the place of performance, providing levelling and antifog properties (see Table 4, 5a & 5b).

A special subsegment of the polyetherfunctional silicones are silicone superspreaders. These materials lower the surface tension of water drastically at very low addition levels. In addition to that they can also enable selfspreading of aqueous solutions on surfaces.

We recently extended this product group with our Silwet Hydrostable\* superspreaders. Common superspreaders based on trisiloxane chemistry – like Silwet L-77 or Silwet L-7280 - exhibit a very weak pH-stability and thus decompose quickly at non-pH neutral conditions. This limits their usability in the context of home care application. Our newly designed Silwet Hydrostable Superspreaders possess an extended pH-stability range and thus allow the utilization of the superspreader properties in acidic and alkaline formulations.

SILWET	FOAM (aq) (AQ)	PENETRATION WETTING	GLOSS	ANTIFOG	LUBRICANT	ANTIBLOCK RELEASE	DISPERSING SOLIDS	EMULSIFYING OILS
SF 1528	Defoamer	+	++	0	+++	++	+	++
L-7500	Defoamer	++	-	0	+	0	+++	-
L-7280	Moderate	+++	++	+++	-	0	+++	+++
SF1188A	Moderate	+	+++	++	++	+	++	++
L-7001E	Moderate	+	++	++	++	+	++	++
Formasil* 3856	Profoamer	+	-	++	+	+	+	++
L-7608	Profoamer	+++	++	+++	++	0	+++	+++
Hydrostable Y-17110	Moderate	+++	++	+++	++	0	+++	+++
Hydrostable 611	Moderate	+++	++	+++	++	0	+++	+++
Hydrostable Y-17112	Moderate	+++	++	+++	++	0	+++	+++
Hydrostable 68	Moderate	+++	++	+++	++	0	+++	+++
Hydrostable 212	Moderate	+++	++	+++	++	0	+++	+++

Table 4: Performance selection guide for silicone-polyether fluids

SILWET*	CLOUD POINT <sup>a</sup> °C	SURFACE TENSION <sup>b</sup> mN·m <sup>-1</sup>	VISCOSITY <sup>c</sup> mm·sec <sup>-2</sup>	MOLECULAR WEIGHT g·mol <sup>-1</sup>	HLB <sup>d</sup>	STRUCTURAL TYPE	EO/PO RATIO IN POLYETHER
SF 1528	Insoluble	Insoluble	250	50000	1 - 4	Pendant	All PO
L-7280	Dispersible	20 - 23	40	800	5 - 8	Trisiloxane	60/40
L-7500	Insoluble	Insoluble	400	4500	5 - 8	Pendant	All PO
SF1188A	25 - 50	27 - 30	1500	17500	9 - 12	Pendant	50/50
L-7001E	37 - 43	27 - 30	1700	20000	5 - 8	Pendant	40/60
Formasil 3856	75 - >100	27 - 30	400	4500	13 - 17	Pendant	All EO
L-7608	Dispersible	20 - 23	35	600	9 - 12	Trisiloxane	All EO

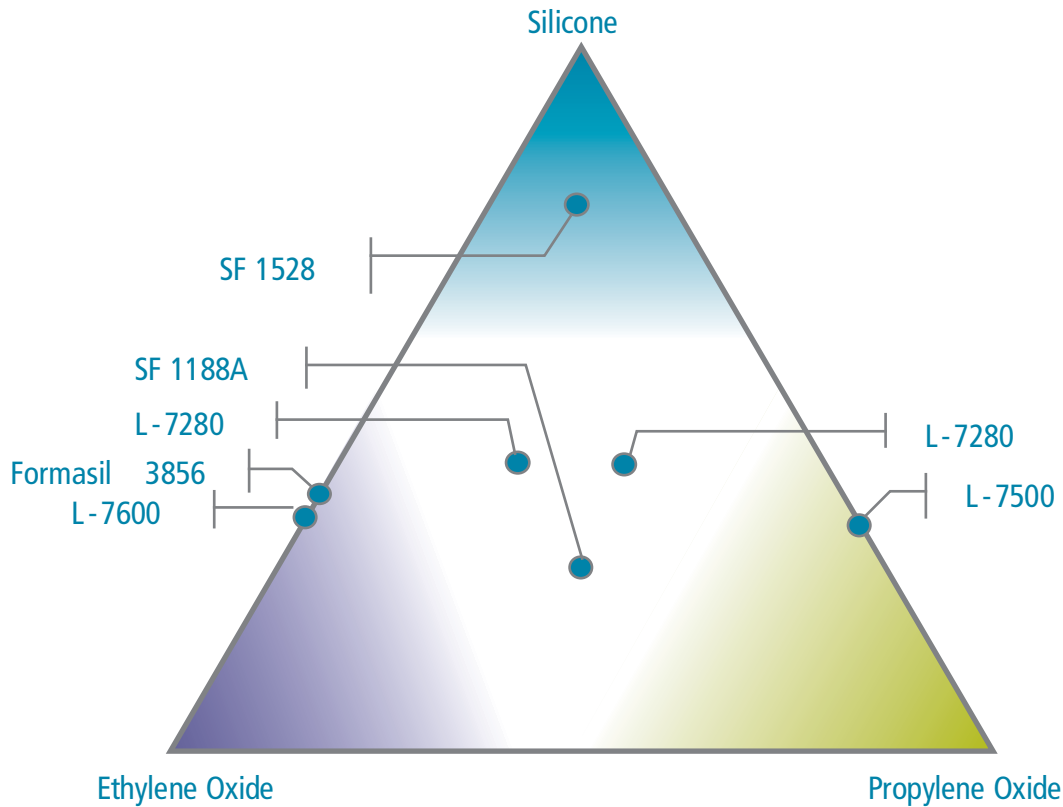
Table 5a: Physical property guide for silicone-polyether fluids.

- a Typical values measured visually on 1% (w/w) aqueous solutions. Insoluble and Disperible materials do not allow a cloud point detection.  
b Typical values measured at 25°C on 0.1%(w/w) aqueous solutions using either DeNooy Ring or Wilhelmy Plate Method.  
c Approximate value at 25°C.  
d Calculated value analog to hydrocarbon based surfactants based on water solubility and cloud points.

SILWET*	CLOUD POINT <sup>a</sup> °C	SPECIFIC GRAVITY@ 25°C	PH-STABILITY <sup>b</sup>	SURFACE TENSION <sup>c</sup> mN·m <sup>-1</sup> water 0.1%	HLB <sup>d</sup>	MOLECULAR g·mol <sup>-1</sup> WEIGHT
Silwet *Hydrostable* Y-17110	Dispersible	1.00	6 – 11	21.0	9-12	600 – 700
Silwet Hydrostable 68	Dispersible	1.00	6 – 8	21.0	9-12	600 – 700
Silwet Hydrostable 611	Dispersible	1.00	6 - 11	25.8	9-12	600 – 700
Silwet Hydrostable Y-17112	Dispersible	1.00	2 – 12	24.5	9-12	600 – 700
Silwet Hydrostable 212	Dispersible	0.98	2 - 12	26.7	9-12	600 - 700

Table 5b: Physical property guide for silicone-polyether fluids.

- a Typical values measured visually on 1% (w/w) aqueous solutions. Insoluble and Disperible materials do not allow a cloud point detection.  
b pH-stability was determined via HPLC in real time aged, pH-adjusted, 0.5weight-% aqueous dispersions of the respective product.  
c Typical values measured at 25°C on 0.1%(w/w) aqueous solutions using either DeNooy Ring or Wilhelmy Plate Method.  
d Calculated value analog to hydrocarbon based surfactants based on water solubility and cloud points.



Plot 1: The Silwet\* triangle for selected products for the home care industries.

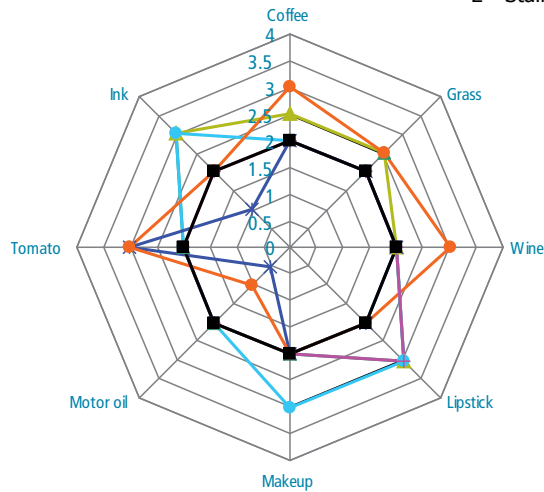
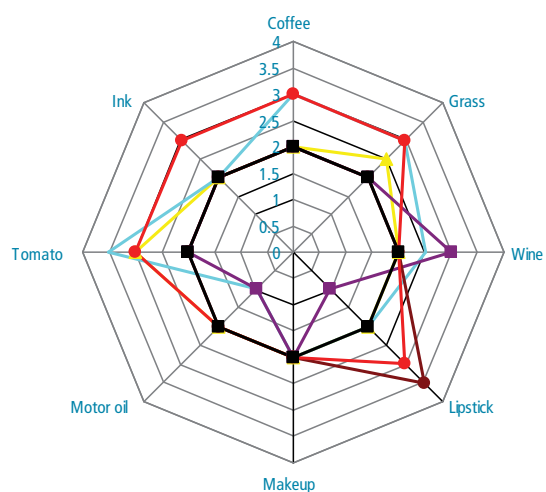
# Silwet\* Hydrostable\*

## Stain Removal Properties - Laundry

Silwet Hydrostable 68, 611 and 212 help the detergent actives penetrate the fibers of the cloth, effecting improved stain release. The most common stains, removed adding 0.1% of Silwet Hydrostable, are : Tomato, Make-up, Lipstick, Coffe and Ink.

T-shirts stained with variety of insults have been treated with commercially available stain pre-wash detergents, both as purchased and with Silwet Hydrostable additives added

### Stain Release from Silwet Superspreader Silwet Hydrostable Superspreaders

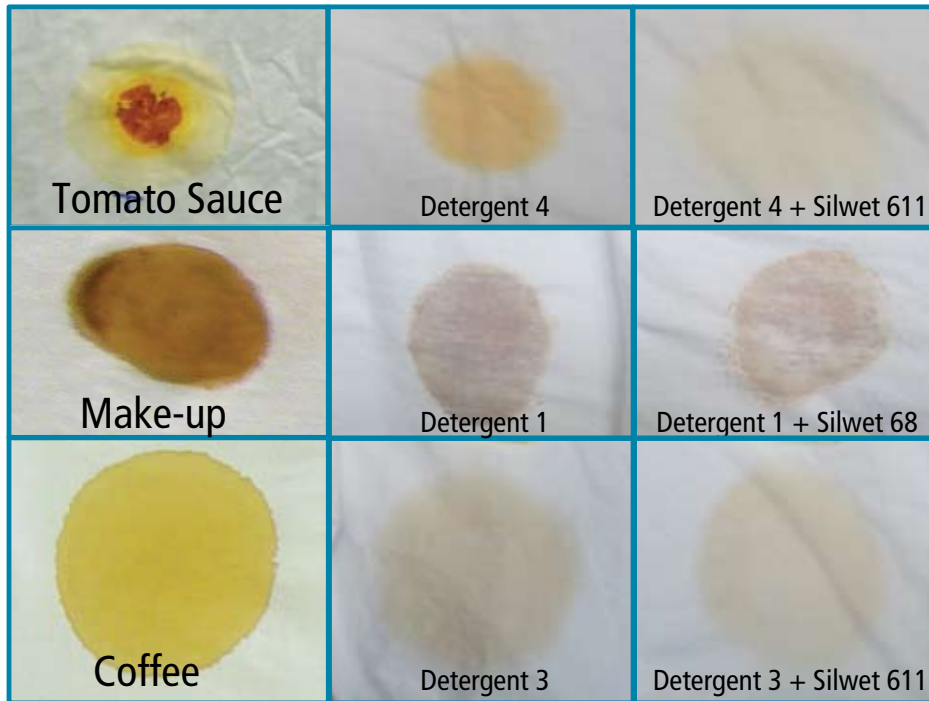


**KEY**  
 1= Stain worse  
 2= Stain equal to pre-wash alone  
 3= Stain better  
 4= Stain gone

- Detergent 1 + Silwet 611
- Detergent 2 + Silwet 611
- Detergent 3 + Silwet 611
- Detergent 4 + Silwet 611
- Detergent 5 + Silwet 611
- Detergent alone

- Detergent 3 + Silwet 68
- Detergent 4 + Silwet 68
- Detergent 5 + Silwet 68
- Detergent 1 + Silwet 68
- Detergent 2 + Silwet 68
- Detergent Alone

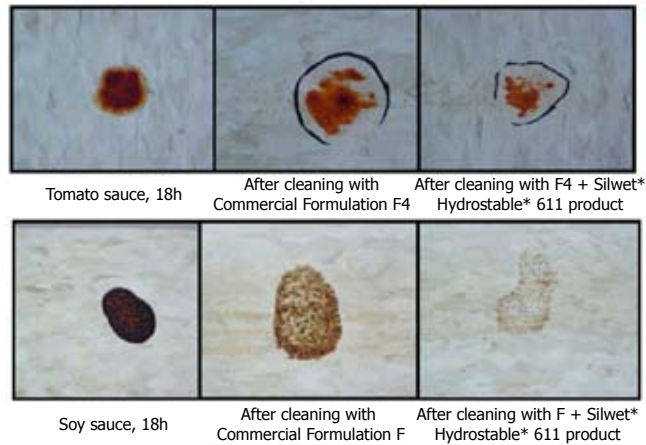
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 \*Baysilone is a trademark of Bayer AG, licensed to Momentive Performance Materials.



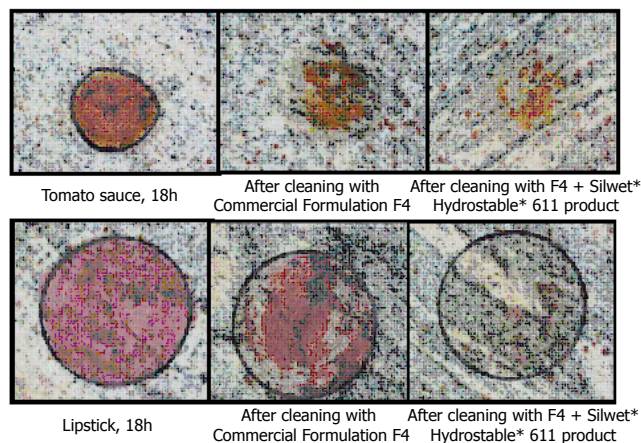
### Kitchen Hard surface

Silwet\* Hydrostable\* 68, 611 and 212 help to remove stain on kitchen hard surface like vinyl, granite and grout. By adding min. 1% of Silwet Hydrostable in kitchen detergent products can be removed stains like : Tomato Sauce, Soy Sauce, lip stick

#### Qualitative assessment on vinyl tile



#### Qualitative assessment on granite





## Antifoams

Momentive Performance Materials offers a wide variety of antifoam compounds, concentrates and emulsions. They are described in more detail in our antifoam or silicones for food processing brochures. In home care, antifoams are mostly utilized in cleaners, liquid and powder detergents or to overcome foaming problems in the production or in filling step of liquid, surfactant rich formulations into their containers.

Main properties besides defoaming performance required are formulation stability and clarity. Table 6 lists the most commonly used Momentive Performance Materials antifoams.

PRODUCT	TYPE	KNOCKDOWN <sup>a</sup>	PERSISTANCE <sup>b</sup>	COMPATIBILITY	TRANSPARENCY	FDA <sup>c</sup>
SAG* 8300	Compound	+++	+++	.. <sup>d</sup>	.. <sup>d</sup>	no
SAG 8400	Compound	+++	++	.. <sup>d</sup>	.. <sup>d</sup>	no
AF 9000	Compound	+++	+	.. <sup>d</sup>	.. <sup>d</sup>	yes
AF CF	Compound	+++	+	.. <sup>d</sup>	.. <sup>d</sup>	no
AF CF 55	Concentrate	+++	+	+	0	no
SAG 387	Concentrate	+++	++	+++	+++	no
Y-14765	Emulsion	+++	+++	++	+	no
Y-14865	Emulsion	+++	+++	+++	+++	no
AF 9010/9020/9030 E	Emulsion	+++	+	+	0	yes

Table 6: Product-performance selector guide for selected Momentive Performance Materials antifoams (+ + + = excellent; 0 = no benefit).

<sup>a</sup> Ability to destroy existing foam.

<sup>b</sup> Ability to prevent foam formation.

<sup>c</sup> FDA/BgVV approval with regards to the use as process aid in food processes. Please contact Momentive Performance Materials for your specific need.

<sup>d</sup> Antifoam compounds need emulsification prior use in liquid formulations. They can be introduced in powder detergents via dispersion in the slurry prior spray drying or granulation prior use.

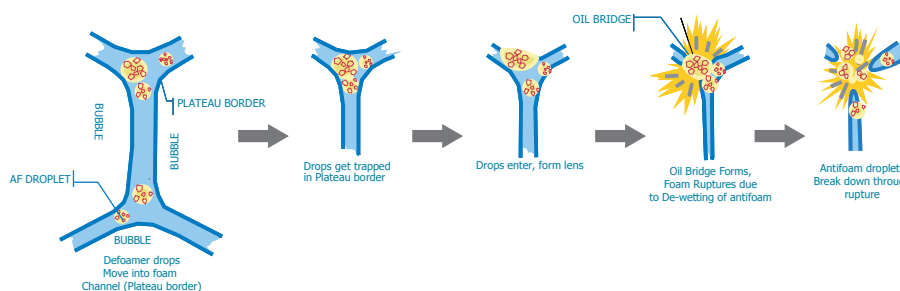
## Silicone Antifoam Mechanism

Many mechanisms are discussed for antifoam performance. The most widely accepted for state of the art silicone antifoams is the bridging mechanism. When foam is generated, in the first step gas bubbles are introduced into the foaming media by shear or generated by boiling. Due to their low density they float to the surface and accumulate there, separated by comparably thick layers of water – the wet bubble foam (Kugelschaum) is formed. The gravity drains the liquid from between the bubbles and they deform due to strong surface forces to polyhedral shapes – the polyhedral foam.

Silicones possess a unique combination of fluidity at high molecular weights, low surface tension and hydrophobic properties. Therefore, if a silicone antifoam droplet is entrapped in the foam lamella during the drainage process, it is able to bridge both foam films (Plot 2). Thus it forms a weak spot, where the foam film can rupture. The mechanical shock will also cause adjacent foam cells to collapse.

The released silicone AF droplet can now step into action again, therefore delivering excellent performance at very low concentrations of the active material.

Plot 2: Antifoam working model.



## Antifoam Performances in Laundry Detergent Powder

Figure 1 shows that Sag 8300 as antifoam granule provides excellent foam control relative to the standard silicone antifoam at low temperature.

Figure 1: Plot of foam height curves of a wash machine test, carried out at 0.07 weight-% antifoam active add on level in a zeolite based washing powder (ZP) at 40°C wash temperature.

Porthole of washing machine is calibrated with a linear scale to denote foam Height, from 0 (representing NO FOAM) to 220 mm (a full porthole).

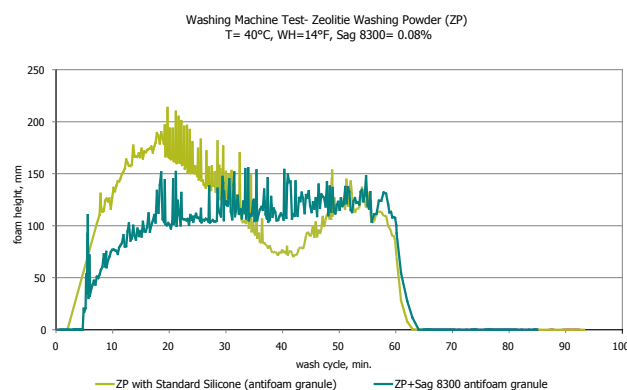


Figure 1

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## Amino-Silicones

As with polyether- or alkyl-functional silicones the modification with other organic moieties expands the scope of properties silicones can provide. Amino groups add a higher surface affinity and surface bondage to the silicones. For this reason these products are used as durability promoters in polishes, drying aids in automated car wash and additives to provide a dirt releasing coating in cleaners and vitro-ceramic cooktop polishes.

Special silicones exhibit an excellent softening in fabric conditioning. Silicones provide a distinguishable, very soft hand at lower dosage, compared to traditionally utilized softening agents. Additionally they can provide easy-ironing, antiwrinkle and shape retention benefits.

PRODUCT	TYPE	SPREADING	DURABILITY	GLOSS	RINSE ADD SOFTNESS	PROTECTION RELEASE
SF 1705	Amino	+++	++	++	0	++
SF 1706	Amino	+++	++	++	+	++
OF TP 3309	Amino	++	++	++	+	+
Formasil* 889	Quat	+++	+++	+++	+++	+++
Formasil 468	Acrylate	+	+++	+	++	+++
Formasil 410	Amino	+	+++	+	+++	+++
SM 2059NPF	Amino	+	+++	+	+++	+++
SR 1000	Resin	0	+++	0	0	+++
SR 107	Resin	0	+++	0	0	++
SS 4230	Resin	0	+++	0	0	+++
SS 4267	Resin	0	+++	+	0	+++

Table 7: Product-performance selector guide for selected Momentive Performance Materialsorgano-functional fluids and resins (+ + + = excellent; 0 = no benefit).

PRODUCT	CAR POLISHES	WASH CONDITIONER	COOKTOP POLISHES	SHOE POLISHES	FABRIC HYDROPHOBIZATION	RINSE ADDSOFTNEER	FABRIC SIZES
SF 1705	X				X		
SF 1706	X	X			X		
OF TP 3309	X	X			X		
Formasil 889	X	X	X			X	X
Formasil 410			X			X	X
SM 2059NPF					X	X	X
SR 1000	X		X	X	X		
SR 107	X			X			
SR 1000	X		X	X	X		
SS 4230	X		X	X	X		
SS 4267	X		X	X			

Table 8: Product-application selector guide for selected Momentive Performance Materials organo-functional fluids and resins.

## Silicone Resins

Silicone Resins are highly branched, silicone-based molecules and their addition to polishes can increase the film thickness and strengthen its resistance to abrasion and weather. Due to their three dimensional structure they have also a higher potential to plug pores in natural leather and, therefore, add to the protective performance of shoe and leather polishes.

# Softness & Comfort



## Car Care - Formasil 889

1% of Formasil\* 889 in Car Shampoo help to improve Gloss, remaining stable for more than 1 year and keeping the shampoo transparent compering to a basic amino-silicones



opacity chart

Car Shampoo without Silwet\* 38.6 - std = 1

Car Shampoo with 5% Formasil 889 (it is 20% active) 43.6 - std = 1.6

Method:

Apply 50  $\mu$ l drop of car shampoo on opacity chart.

Spread the product with wipe and dry for 30 min.

Polish with new wipe and measure the gloss by glossmeter.



# Shine & Gloss



## Formulations

For information on how to formulate Momentive Performance Materials products, please refer to the nearest sales office.

## Storage and handling

For information on shipping, storage, and handling of any Momentive Performance Materials products, please refer to the nearest sales office. See the back page for addresses and phone numbers

## Product Safety

Material Safety Data Sheets (MSDS) and other product safety information, contact the Momentive Performance Materials sales office nearest you. Before handling any of the products mentioned in the text, please obtain available product safety information and take necessary steps to ensure safety of use.

**Penetrate,  
wet  
&  
cover**





**MOMENTIVE**  
performance materials

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The science behind the solutions.

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