

## PRODUCT GUIDE PAINT ADDITIVES

○ DEFOAMERS

○ WAX ADDITIVES



○ RHEOLOGY ADDITIVES

○ WETTING AND DISPERSING ADDITIVES

○ SURFACE ADDITIVES



All products in  
this brochure  
are PFAS-free.



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You can find more information about the product groups on our website and in our product group-specific [ebooks](#).

## Note

To ensure the best appearance and full functionality, please open in Adobe Acrobat.

## Abbreviations

BG	Butylglycol
BuAc	Butyl acetate
DIBK	Diisobutyl ketone
DMSO	Dimethyl sulfoxide
DPGDA	Dipropylene glycol diacrylate
DPM	Dipropylene glycol monomethyl ether
EAA	Ethylene acrylic acid
EOTMPTA	Ethoxylated trimethylolpropane triacrylate
EVA	Ethylene vinylacetate
HASE	Hydrophobic modified polyacrylate
HDDA	Hexanediol diacrylate
HDPE	High density polyethylene
NMP	N-Methyl pyrrolidone
PEG	Polyethylene glycol
PG	Propylene glycol
PM	Methoxypropanol
PMA	Methoxypropyl acetate
PNB	Propylene glycol n-butyl ether
PONPGDA	Propoxylated neopentyl glycol diacrylate
PPG	Polypropylene glycol
SMA	Styrene maleic anhydride
TMBP-MIB	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate
TPGDA	Tripropylene glycol diacrylate



The values indicated on the following pages describe typical properties and do not constitute specification limits.

## Wetting and dispersing additives

BYK's wetting and dispersing additives result in a fine and homogeneous distribution of solid particles in liquid media and ensure the long-term stability of such systems. The additives stabilize pigments (inorganic, organic, and also effect pigments) and fillers. The liquid phase can comprise water and the entire range of organic solvents of varying polarity as well as different binders.

Wetting agents are surface-active substances and improve the wetting of solids. Dispersing agents prevent particle flocculating by various mechanisms (electrostatic and/or steric effects). Wetting and dispersing additives unite both mechanisms of action in one product, i.e. they are both wetting and stabilizing.

Deflocculating wetting and dispersing additives are used for the wetting and stabilization of pigments and to avoid flooding/floating as well as to improve gloss and transparency. Controlled flocculating wetting and dispersing additives, however, also have a wetting and stabilizing effect and additionally have a positive effect on the settling and sagging behavior as well as on flooding and floating. Pigment synergists are delivered in powder form and support pigment dispersion.



## Deflocculating wetting and dispersing additives (1/7)

Product	Chemistry						Product data						Systems				Pigments									
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/ SMA-based	Other	Active substance (%) *1	Solvent					Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers		
ANTI-TERRA-U	■						50	Xylene/isobutanol 8/1					24	19		■	■		■						■	
ANTI-TERRA-U 80	■						80	BG					40	30		■	■		■							■
ANTI-TERRA-U 100	■						100						50	35		■	■	■	■							■
BYK-151					■		40	Water/DPM 11/1							■				■							■
BYK-153*2					■		44	Water							■				■							■
BYK-154*3					■		42	Water							■				■							■
BYK-155/35*3					■		35	Water					25	125	■				■							■
BYK-155/50*2					■		50	Water							■				■							■
BYK-156*2					■		51	Water							■				■							■
BYK-9076			■				100						38	44		■	■	■	■	■	■		■			■
BYK-9077			■				100							48		■	■	■	■	■	■		■			■
BYK-W 903		■					40	PMA								■			■					■		■
BYK-W 966	■						52	Hydrocarbons					26	19		■			■							■
BYK-W 969		■					40	Monophenylglycol					30	30		■			■							■
BYK-W 980	■						80	BG					40	30		■			■							■
BYK-W 996		■					52	Solvent naphtha/PMA 1/1					71			■			■							■
BYK-W 9010		■					100						129			■		■	■							■
BYK-W 9011		■					100						65			■			■							■
BYK-W 9012		■					100						308			■			■							■

<sup>\*1</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*2</sup> Only available in North America. <sup>\*3</sup> Not available in North America.

<sup>\*4</sup> (Organo) Tin-free version: Future-oriented variant of the original product. Originals are still available. <sup>\*5</sup> Biocide-free version: Future-oriented variant of the original product. Originals are still available.

## Deflocculating wetting and dispersing additives (2/7)

Product	Chemistry						Product data					Systems				Pigments						
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/ SMA-based	Other	Active substance (%) *1	Solvent			Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers
BYKJET-9131					■		40	PMA/BG 1/1				2		■				■				
BYKJET-9132					■		40	PMA/BG 1/1			6	28		■				■				
BYKJET-9142						■	100				95			■		■		■				
BYKJET-9150					■		70	PONPGDA			5	12		■				■		■		
BYKJET-9151					■		> 98.5				8	18	■	■		■		■		■		
BYKJET-9152					■		99				6	19	■	■		■		■		■		
DISPERBYK-101 N*3	■						52	Isoparaffinic hydrocarbons/PG 2/1			28	24		■			■					
DISPERBYK-102		■					100				101		■	■		■						
DISPERBYK-103		■					40	PMA						■			■				■	■
DISPERBYK-106		■					100				132	74		■	■	■	■	■				
DISPERBYK-107	■						90	Isoparaffinic hydrocarbons				64		■	■		■	■		■		
DISPERBYK-108	■						100					71		■	■	■	■	■		■		■
DISPERBYK-109	■						100					140			■	■	■					■
DISPERBYK-110		■					52	PMA/alkylbenzenes 1/1			53			■			■		■		■	
DISPERBYK-111		■					100				129			■		■	■				■	■
DISPERBYK-115				■			52	Xylene/BuAc/PMA 5/1/1				25		■	■		■	■		■		
DISPERBYK-118		■					80	PMA			36			■			■		■			■
DISPERBYK-130	■						51	Alkylbenzenes/BG 5/1			< 3	190		■						■		
DISPERBYK-140			■				52	PMA			73	76		■	■		■	■		■		

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## Deflocculating wetting and dispersing additives (3/7)

Product	Chemistry						Product data						Systems				Pigments						
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/SMA-based	Other	Active substance (%) <sup>*1</sup>	Solvent				Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers
DISPERBYK-142			■				60	PMA				46	43		■	■		■	■		■		
DISPERBYK-145			■				100					76	71		■	■	■	■	■		■		■
DISPERBYK-161				■			30	PMA/BuAc 6/1					11		■			■	■		■		
DISPERBYK-161 TF <sup>*4</sup>				■			30	PMA/BuAc 6/1					11		■			■	■		■		
DISPERBYK-162				■			38	PMA/xylene/BuAc 5/4/2					12.5		■			■	■	■	■		
DISPERBYK-162 TF <sup>*4</sup>				■			38	PMA/BuAc 4/1					12.5		■			■	■	■	■		
DISPERBYK-163				■			45	Xylene/BuAc/PMA 3/1/1					10		■	■		■	■		■		■
DISPERBYK-163 TF <sup>*4</sup>				■			45	Xylene/BuAc/PMA 3/1/1					10		■	■		■	■		■		■
DISPERBYK-164				■			60	BuAc					18		■	■		■	■		■		
DISPERBYK-166				■			29.5	BuAc/PMA 4/1					20		■			■	■		■		
DISPERBYK-167				■			52	PMA/BuAc 2/1					12.5		■	■		■	■		■		■
DISPERBYK-167 TF <sup>*4</sup>				■			52	PMA/BuAc 2/1					12.5		■	■		■	■		■		■
DISPERBYK-168				■			30	Dicarboxylic acid esters					10.5		■			■	■		■		
DISPERBYK-169				■			30	BuAc					17.5		■				■				
DISPERBYK-170				■			30	PMA/BuAc 6/1				11			■			■	■		■		
DISPERBYK-170 TF <sup>*4</sup>				■			30	PMA/BuAc 6/1				11			■			■	■		■		
DISPERBYK-171				■			39.5	PMA/BuAc 4/1				13			■			■	■		■		
DISPERBYK-174				■			52.5	Xylene/PMA/BuAc 3/2/1				22			■			■	■		■		
DISPERBYK-180		■					100					94	94	■	■		■	■		■			■

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## Deflocculating wetting and dispersing additives (4/7)

Product	Chemistry						Product data						Systems				Pigments								
							Solvent																		
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/ SMA-based	Other	Active substance (%) <sup>*1</sup>					Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers		
DISPERBYK-181					■		65	PMA/PG/PM 5/3/2					33	33	■					■					
DISPERBYK-182				■			43	PMA/DPM/BuAc 7/4/4						13	■	■			■	■			■		
DISPERBYK-184				■			52	DPM/PG 2/1						15	■				■	■			■		
DISPERBYK-184 TF <sup>*4</sup>				■			52	DPM/PG 2/1						15	■				■	■			■		
DISPERBYK-185				■			> 90	PEG						17	■	■	■	■	■	■			■		
DISPERBYK-187					■		70	PG/PM 2/3					35	35	■					■					
DISPERBYK-190					■		40	Water					10	1	■				■	■			■	■	■
DISPERBYK-190 BF <sup>*5</sup>					■		40	Water					10	1	■				■	■			■	■	■
DISPERBYK-191					■		100						30	20	■				■	■			■		■
DISPERBYK-192	■						100									■						■			
DISPERBYK-193						■	40	Water								■				■	■			■	
DISPERBYK-194 N					■		57	Water					75			■				■	■			■	■
DISPERBYK-195						■	35	Water					2	< 1	■					■	■			■	
DISPERBYK-199					■		40	Water								■				■	■			■	■
DISPERBYK-199 BF <sup>*5</sup>					■		40	Water								■				■	■			■	■
DISPERBYK-2000					■		40	PMA/BG 1/1						4			■				■	■		■	
DISPERBYK-2001					■		46	PMA/BG/PM 2/2/1					19	29		■				■	■		■		
DISPERBYK-2008					■		60	PPG						66			■		■					■	
DISPERBYK-2009					■		44	PMA/BG 1/1						4			■		■	■			■	■	

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## Deflocculating wetting and dispersing additives (5/7)

Product	Chemistry						Product data						Systems				Pigments							
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/ SMA-based	Other	Active substance (%) *1	Solvent					Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers
DISPERBYK-2009 R					■		43	PM/PMA 2/1						4		■		■	■	■		■	■	
DISPERBYK-2010					■		40	Water					20	20	■				■	■		■		
DISPERBYK-2012					■		40	Water					4	7	■				■	■		■	■	
DISPERBYK-2013					■		> 97						8	18	■	■		■	■	■		■		
DISPERBYK-2014						■	100							19	■	■		■		■		■		
DISPERBYK-2015					■		40	Water					10		■				■	■		■	■	■
DISPERBYK-2015 BF*5					■		40	Water					10		■				■	■		■	■	■
DISPERBYK-2018					■		52	Water						26	■				■	■		■		
DISPERBYK-2019					■		52	Water						22	■				■	■		■		
DISPERBYK-2022					■		60	PMA						61		■			■	■		■		■
DISPERBYK-2025					■		70	PMA					38	37		■			■	■		■	■	
DISPERBYK-2026					■		60	PMA					34	39		■			■	■		■		■
DISPERBYK-2050					■		52	PMA						30		■			■	■		■		
DISPERBYK-2055					■		100							40	■	■	■	■	■	■		■		
DISPERBYK-2060					■		> 95	Water					5		■	■	■		■					■
DISPERBYK-2061						■	100							3	■	■	■			■				
DISPERBYK-2062						■	100						65	65	■	■	■		■					■
DISPERBYK-2080					■		30	Water							■				■	■				■
DISPERBYK-2081					■		45	Water							■				■					■

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## Deflocculating wetting and dispersing additives (6/7)

Product	Chemistry						Product data				Systems				Pigments							
							Solvent															
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/SMA-based	Other	Active substance (%) <sup>*1</sup>				Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers
DISPERBYK-2096	■						100				40		■	■	■							
DISPERBYK-2117						■	100					24		■		■	■	■		■		
DISPERBYK-2118						■	100					16.5		■	■	■	■	■		■		■
DISPERBYK-2150			■				52	PMA				57		■	■		■	■		■		
DISPERBYK-2150 TF <sup>*4</sup>			■				52	PMA				57		■	■		■	■		■		
DISPERBYK-2151			■				80	PMA						■		■	■	■		■		■
DISPERBYK-2151 TF <sup>*4</sup>			■				80	PMA						■		■	■	■		■		■
DISPERBYK-2152			■				> 99							■		■	■	■		■		■
DISPERBYK-2152 TF <sup>*4</sup>			■				> 99							■		■	■	■		■		■
DISPERBYK-2155			■				100					48		■	■	■	■	■		■		
DISPERBYK-2155 TF <sup>*4</sup>			■				100					48		■	■	■	■	■		■		
DISPERBYK-2157			■				100			< 7	35				■	■	■	■		■		
DISPERBYK-2158			■				60	DPGDA				13				■					■	
DISPERBYK-2159			■				60	PMA				13		■		■					■	
DISPERBYK-2163				■			45	Xylene/BuAc/PMA 3/1/1				10		■	■		■	■		■		■
DISPERBYK-2163 TF <sup>*4</sup>				■			45	PMA/BuAc 4/1				10		■	■		■	■		■		■
DISPERBYK-2164				■			60	BuAc/PMA 2/3				14		■	■		■	■		■		■
DISPERBYK-2190					■		100						■									■
DISPERBYK-2200			■				100							■		■	■	■		■		

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## Deflocculating wetting and dispersing additives (7/7)

Product	Chemistry						Product data						Systems				Pigments					
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/ SMA-based	Other	Active substance (%) <sup>*1</sup>	Solvent			Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers
DISPERBYK-2205			■				100				24	27		■		■	■		■			
DISPERBYK-2290					■		100						■								■	
DISPERBYK-2291					■		100						■								■	
DISPERPLAST-1142		■					100				85			■			■	■			■	
DISPERPLAST-1150		■					100				95			■			■	■			■	

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## Controlled flocculating wetting and dispersing additives

Product	Chemistry						Product data						Systems				Pigments								
							Solvent																		
	Fatty acids	Phosphoric acid esters	Hyperbranched polyamines	Polyurethanes	Polyacrylates/ SMA-based	Other	Active substance (%) <sup>*6</sup>					Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Inorganic	Organic	Effect	Carbon blacks	Matting agents	Fillers		
ANTI-TERRA-202 <sup>*7</sup>	■						50	White spirit/2-butoxyethanol 9/1					51	51			■		■					■	
ANTI-TERRA-203	■						50	Solvent naphtha					51	51			■		■						■
ANTI-TERRA-204	■						52	PM/alkylbenzenes 3/2					41	37			■		■						■
ANTI-TERRA-205	■						52	PM/isoparaffinic hydrocarbons 3/2					40	37			■		■						■
ANTI-TERRA-250	■						70	Water					46	41	■				■						■
BYK-220 SN	■						52	Alkylbenzenes					100			■			■		■		■		
BYK-P 104	■						50	Xylene/DIBK 9/1					180			■			■						■
BYK-P 104 S	■						50	Xylene/DIBK 9/1					150			■			■						■
BYK-P 105	■						100						365			■		■	■						■
BYKUMEN	■						46	White spirit/isobutanol 3/2					35			■			■						■
BYKUMEN N	■						46	Dearomatized hydrocarbons/isobutanol 3/2					35			■			■						■
DISPERBYK	■						50	Water					85	85	■	■			■						

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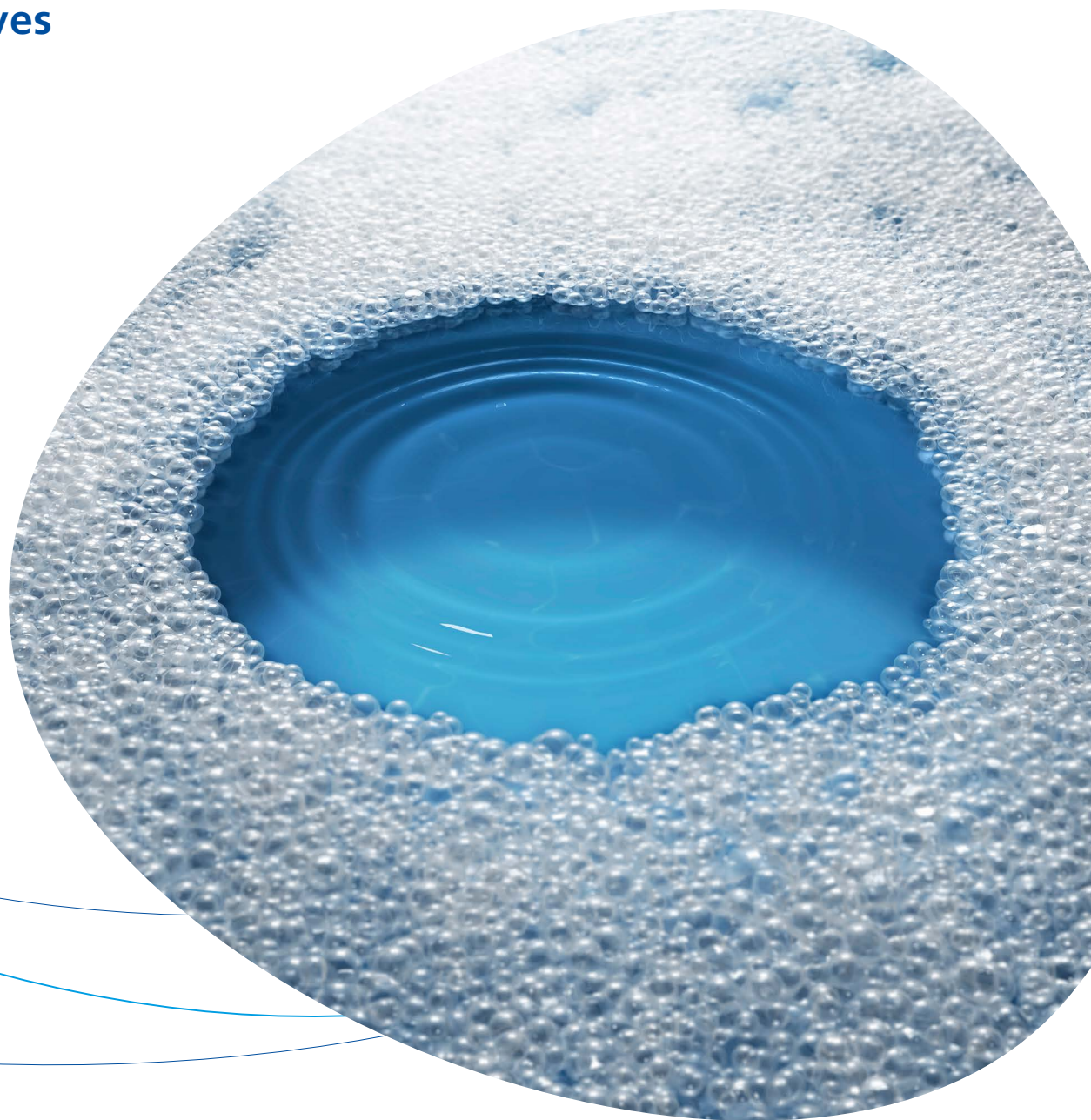
<sup>\*7</sup> Only available in North America.

## Pigment synergists

Product	Product data	
	Chemical characterization	Properties
BYK-SYNERGIST 2100	Insoluble pigment complex	For phthalocyanine pigments, organic violet pigments, and carbon blacks. Always use in combination with high molecular weight wetting and dispersing additives.
BYK-SYNERGIST 2105	Insoluble pigment complex	For organic yellow, orange, and red pigments. Always use in combination with high molecular weight wetting and dispersing additives.

## Defoamers and air release additives

Foam is a dispersion of a gas in a liquid. The occurrence of foam when producing and processing coatings, but also in many other industrial processes, is usually not desired. Defoamers or air release agents prevent and destroy the foam bubbles and enable an improved processing, a perfect surface, and optimum product properties. BYK offers defoamers that can be used in a variety of different applications. You can divide them into three main groups: silicone defoamers, mineral oil defoamers, and polymer defoamers.



## Silicone-based defoamers (1/3)

Product	Chemistry		Product data			Systems			Addition		Low cyclic alternative		
				Solvent									
	Polysiloxanes	Hydrophobic particles	Polymer	Solvent-free product				Aqueous	Solvent-borne	Solvent-free		Mill base	Post-addition
BYK-017*8	■	■		■				■			■		BYK-1707
BYK-018	■	■	■	■				■			■		
BYK-019*8	■				DPM			■			■		BYK-1709
BYK-021	■	■	■	■				■			■		
BYK-022	■	■	■	■				■			■	■	
BYK-023	■	■			Aqueous emulsion			■			■	■	
BYK-024	■	■		■				■			■	■	
BYK-025	■				DPM			■				■	
BYK-028	■	■	■	■				■			■	■	
BYK-044	■	■			Aqueous emulsion			■			■		
BYK-070	■		■		Xylene/PMA/BuAc 10/2/1		■				■	■	
BYK-073	■				PMA/n-butanol/BuAc 2/1/1		■				■	■	
BYK-077	■				Alkylbenzenes		■				■	■	
BYK-081	■		■		PG		■	■			■	■	
BYK-085	■			■			■		■		■	■	
BYK-088	■		■		Hydrocarbon mixture (paraffins, naphthenes)		■	■			■	■	
BYK-092	■	■	■	■			■				■	■	
BYK-093	■	■	■	■			■				■	■	
BYK-094	■	■		■			■				■	■	
BYK-141	■		■		Alkylbenzenes/isobutanol 11/2		■	■			■	■	
BYK-1610	■	■			Aqueous emulsion		■				■	■	

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

\*8 Content of cyclic siloxanes ≥ 0.1 %.

## Silicone-based defoamers (2/3)

Product	Chemistry		Product data			Systems			Addition		Low cyclic alternative
				Solvent							
	Polysiloxanes	Hydrophobic particles	Polymer	Solvent-free product				Aqueous	Solvent-borne	Solvent-free	
BYK-1611	■	■			Aqueous emulsion	■			■	■	
BYK-1615	■	■			Aqueous emulsion	■			■	■	
BYK-1616	■	■			Aqueous emulsion	■			■	■	
BYK-1617	■	■			Aqueous emulsion	■			■	■	
BYK-1707	■	■		■		■			■		
BYK-1709	■				DPM	■			■		
BYK-1719	■	■		■		■			■		
BYK-1723	■	■			Aqueous emulsion	■			■	■	
BYK-1724	■	■			Aqueous emulsion	■			■	■	
BYK-1730	■	■		■		■			■		
BYK-1760	■		■	■			■	■	■	■	
BYK-1770	■			■		■			■	■	
BYK-1780	■	■		■		■			■		
BYK-1781	■	■		■		■			■	■	
BYK-1785	■	■			Aqueous emulsion	■			■		
BYK-1786	■	■			Aqueous emulsion	■			■	■	
BYK-1789	■	■		■		■			■	■	
BYK-1796	■	■		■			■	■	■	■	
BYK-1797* <sup>8</sup>	■			■			■	■	■	■	
BYK-1799	■	■		■			■	■	■	■	
BYK-1810	■				BuAc		■	■	■	■	

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

\*<sup>8</sup> Content of cyclic siloxanes ≥ 0.1 %.

## Silicone-based defoamers (3/3)

Product	Chemistry		Product data				Systems			Addition		Low cyclic alternative
				Solvent								
	Polysiloxanes	Hydrophobic particles	Polymer	Solvent-free product			Aqueous	Solvent-borne	Solvent-free	Mill base	Post-addition	
BYK-1811	■				BuAc			■	■	■	■	
BYK-1815	■				BuAc			■	■	■	■	
BYK-1816	■				BuAc			■	■	■	■	
BYK-1818	■				BuAc			■	■	■	■	
BYK-1880	■			■				■	■	■	■	
BYK-A 525	■				White spirit/PMA 9/1			■	■	■	■	
BYK-A 530	■		■		Hydrocarbon mixture			■	■	■	■	
BYK-A 595	■	■			Aqueous emulsion	■				■		

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

\*8 Content of cyclic siloxanes  $\geq 0.1$  %.



## Polymer-based defoamers (1/2)

Product	Chemistry		Product data			Systems			Addition	
	Polysiloxanes	Hydrophobic particles	Polymer	Solvent-free product	Solvent	Aqueous	Solvent-borne	Solvent-free	Mill base	Post-addition
BYK-011		■	■		Hydrocarbons/ethyl hexanol 21/1	■				■
BYK-012		■	■	■		■			■	
BYK-014		■	■	■		■			■	■
BYK-015		■	■	■		■			■	■
BYK-054			■		Isoparaffins		■	■	■	■
BYK-054 T			■		Isoparaffins		■	■	■	■
BYK-055			■		Alkylbenzenes/PMA 12/1		■	■	■	■
BYK-057			■		Alkylbenzenes/PMA 8/1		■	■	■	■
BYK-1640		■	■		Aqueous emulsion	■			■	■
BYK-1641	■	■	■		Aqueous emulsion	■			■	■
BYK-1642		■	■		Aqueous emulsion	■			■	■
BYK-1680	■		■	■		■			■	■
BYK-1681			■	■		■			■	■
BYK-1710		■	■		Hydrocarbon mixture	■			■	■
BYK-1711		■	■		Hydrocarbon mixture	■			■	■
BYK-1740		■		■		■			■	■
BYK-1745		■	■	■		■			■	■
BYK-1748			■	■				■	■	■
BYK-1765			■	■			■	■	■	■
BYK-1788			■	■			■	■	■	■
BYK-1790			■	■			■	■	■	■

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

## Polymer-based defoamers (2/2)

Product	Chemistry		Product data			Systems			Addition	
			Solvent							
	Polysiloxanes	Hydrophobic particles	Polymer	Solvent-free product		Aqueous	Solvent-borne	Solvent-free	Mill base	Post-addition
BYK-1791			■		Isoparaffins		■	■	■	
BYK-1794			■	■			■	■	■	■
BYK-1795			■	■			■	■	■	■
BYK-1851			■		Dearomatized hydrocarbons		■	■	■	
BYK-1852			■		Dearomatized hydrocarbons		■	■	■	
BYK-1856			■		BuAc/PMA 9/1		■	■		■
BYK-A 500			■		Alkylbenzenes/PMA 12/1		■	■	■	■
BYK-A 501			■		Alkylbenzenes/PMA 8/1		■	■	■	■
BYK-A 535			■	■			■	■	■	■
BYK-A 535 T			■	■			■	■	■	■
BYK-A 555			■		Solvent naphtha		■	■	■	■

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

## Mineral oil-based defoamers (alkylphenol ethoxylate-free)

Product	Chemistry				Product data				Systems			Addition		
					Solvent									
	Polysiloxanes	Hydrophobic particles	Polymer	Mineral oil	Solvent-free product					Aqueous	Solvent-borne	Solvent-free	Mill base	Post-addition
BYK-035	■	■		■	■					■			■	■
BYK-037	■	■		■		Aqueous emulsion				■			■	■
BYK-038	■	■		■	■					■			■	■
BYK-039		■		■	■					■			■	■
BYK-1630	■	■		■	■					■			■	■
BYK-1632		■		■		Aqueous emulsion				■			■	■

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

## Powdered defoamers

Product	Chemistry				Product data					Systems			Addition	
					Carrier									
	Polysiloxanes	Hydrophobic particles	Polymer	Mineral oil	Solvent-free product					Aqueous	Solvent-borne	Solvent-free	Mill base	Post-addition
BYK-1690 SD			■	■	■	Inorganic				■			■	
BYK-1691 SD			■		■	Inorganic				■			■	
BYK-1692 SD			■		■	Inorganic				■			■	
BYK-1693 SD			■		■	Inorganic				■			■	

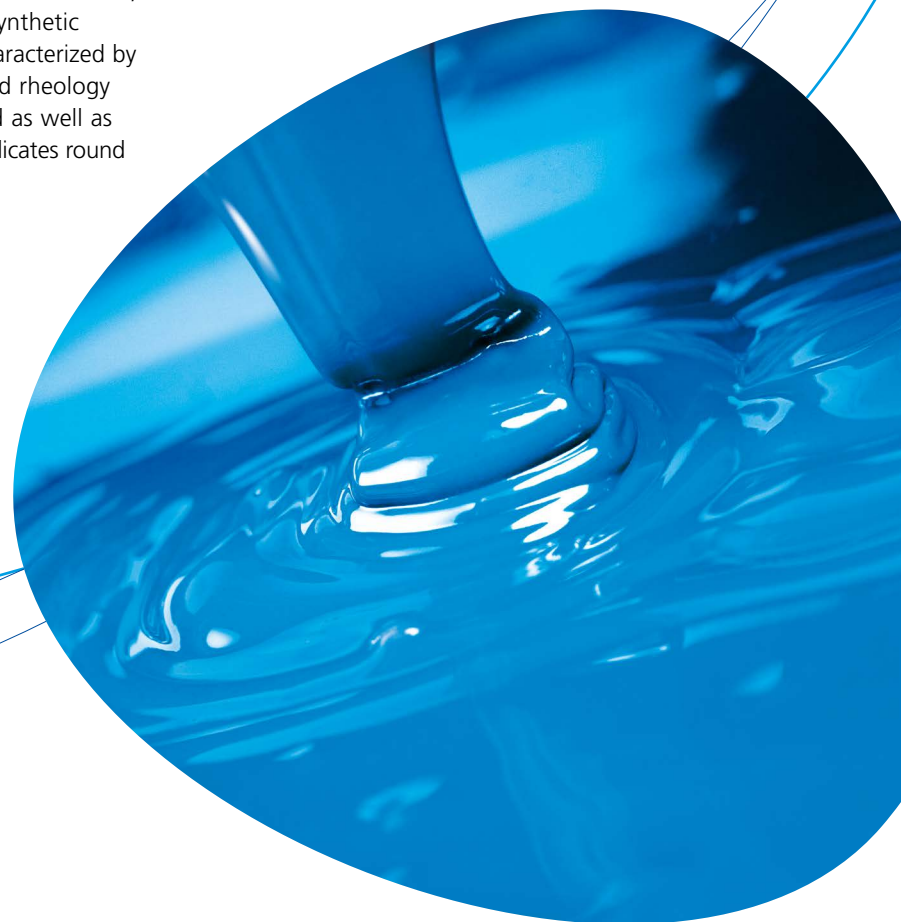
## Rheology additives

By using rheology additives, the application properties of the most varied of systems can be significantly improved.

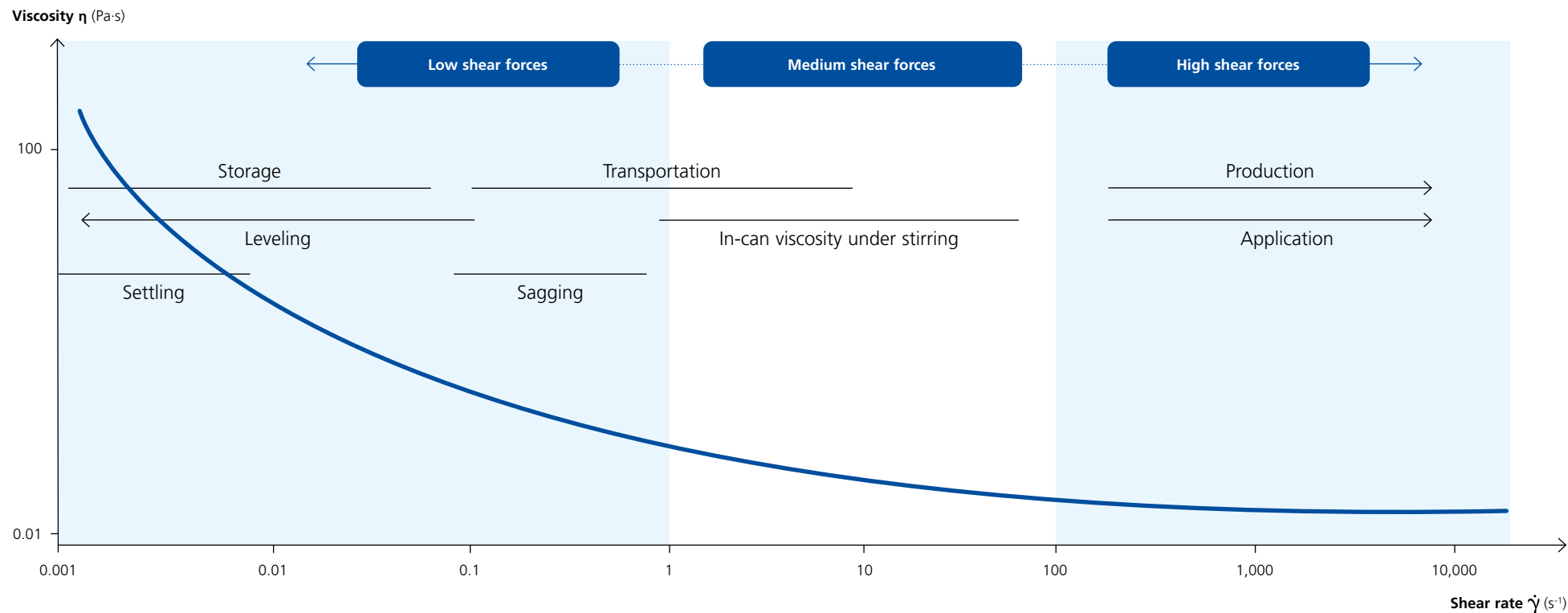
However, depending on the desired improvement, tailor-made solutions and a precise adaptation of the rheological profile are required. For example, the increase in storage stability requires a different viscosity profile than an increase in film thicknesses, while, for an increase in viscosity in low shear ranges, a different approach is required than for an increase in the brushing resistance.

Moreover, the additive must be precisely adapted to the polarity of the system, depending on whether the system in question is solvent-borne, solvent-free, or aqueous.

BYK offers a multitude of the most diverse additives for systems with a variety of polarities. Alongside additive classes such as natural phyllosilicates or associate thickeners, special high-performance additives such as synthetic phyllosilicates are also available. These are characterized by their high uniformity and transparency. Liquid rheology additives that can be very easily incorporated as well as enhancers for fumed silica and various phyllosilicates round off the scope of products available.



## Typical shear rates



G.01

Low-shear conditions are typically experienced while the coating is stored and immediately after it has been applied to the substrate. During these phases, low-shear viscosity is needed to resist pigment settling and film sagging while providing the required leveling of the applied coating film.

Medium-shear conditions are created during stirring of the coating, pouring, and some types of pumping. During these phases, medium-shear viscosity helps to facilitate good in-can appearance and handling properties and may also affect spattering. Rheology additives that are effective in this range are often referred to "KU builders" or "medium-shear builders."

High-shear processes include brushing, certain aspects of rolling, and spraying. High-shear viscosity influences brush and roller drag as well as film building and hiding power. Rheology additives that provide a good effectivity in the high shear range are often referred to as "ICI builders" or "high-shear builders."

## Rheology additives (1/5)

Product	Product data		Delivery form		Systems			Effective at			Incorporation					
	Active substance (%) *9	Solvent	Liquid	Solid	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Low shear range	Medium shear range	High shear range	Post-addition	Direct addition into the powder component	Pregel *10	Medium shear	High shear
Modified ureas																
RHEOBYK-410	52	NMP	■			■		■	■			●			●	●
RHEOBYK-411	25	NMP	■				■		■			●			●	●
RHEOBYK-420	52	NMP	■		■				■			●			●	●
RHEOBYK-7410 CA *11	47	Cyclic amide	■			■		■	■			●			●	●
RHEOBYK-7410 ET	40	Amide ether	■			■		■	■			●			●	●
RHEOBYK-7411 CA *11	45	Cyclic amide	■				■		■			●			●	●
RHEOBYK-7411 ES	25	Amide ester	■				■		■			●			●	●
RHEOBYK-7420 CA *11	52	Cyclic amide	■		■				■			●			●	●
RHEOBYK-7420 ES	40	Amide ester	■		■				■			●			●	●
RHEOBYK-7420 ET	42	Amide ether	■		■				■			●			●	●
RHEOBYK-7460 CA	40	Cyclic amide	■			■		■	■			●			●	●
RHEOBYK-7470 CA	47.5	Cyclic amide	■		■				■			●			●	●
RHEOBYK-D 410	52	DMSO	■			■		■	■			●			●	●
RHEOBYK-D 420	45	DMSO	■		■				■			●			●	●
RHEOBYK-D 7460	50	DMSO	■			■		■	■			●			●	●

● Especially recommended    ○ Suitable

<sup>\*9</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*10</sup> Pregel: Pre-dispersion of a powdered rheological additive in suitable medium

<sup>\*11</sup> Not available in North America.    <sup>\*12</sup> Acrylic thickener (HASE)    <sup>\*13</sup> Only available in North America and Europe.

## Rheology additives (2/5)

Product	Product data		Delivery form		Systems			Effective at			Incorporation					
	Active substance (%) <sup>*9</sup>	Solvent	Liquid	Solid	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Low shear range	Medium shear range	High shear range	Post-addition	Direct addition into the powder component	Pregel <sup>*10</sup>	Medium shear	High shear
Associative thickeners																
RHEOBYK-425	50	PPG	■		■				■			●			○	○
RHEOBYK-7600	15	Water	■		■				■			○			○	○
RHEOBYK-7601	15	Water	■		■				■			●			●	●
RHEOBYK-7610	20	Water	■		■				■			●			●	●
RHEOBYK-7650	100			■	■				■			○		○	●	●
RHEOBYK-7670	100			■	■					■		○		○	●	●
RHEOBYK-7690	100			■	■						■	○		○	●	●
RHEOBYK-7691	100			■	■						■	○		○	●	●
RHEOBYK-H 3300 VF	17.5	Water	■		■				■			●			●	●
RHEOBYK-H 6500 VF	20	Water	■		■				■			●			●	●
RHEOBYK-H 7500 VF	17.5	Water	■		■				■			●			●	●
RHEOBYK-H 7625 VF	20	Water	■		■				■			●			●	●
RHEOBYK-HV 80 <sup>*12</sup>	30	Water	■		■					■		●			●	●
RHEOBYK-L 1400 VF	20	Water	■		■						■	●			●	●
RHEOBYK-M 2600 VF	20	Water	■		■					■		●			●	●
RHEOBYK-T 1000 VF	22.5	Water	■		■						■	●			●	●
RHEOBYK-T 1010 VF	22.5	Water	■		■						■	●			●	●

● Especially recommended    ○ Suitable

<sup>\*9</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*10</sup> Pregel: Pre-dispersion of a powdered rheological additive in suitable medium

<sup>\*11</sup> Not available in North America.    <sup>\*12</sup> Acrylic thickener (HASE)    <sup>\*13</sup> Only available in North America and Europe.

## Rheology additives (3/5)

Product	Product data		Delivery form		Systems			Effective at			Incorporation					
	Active substance (%) *9	Solvent	Liquid	Solid	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Low shear range	Medium shear range	High shear range	Post-addition	Direct addition into the powder component	Pregel *10	Medium shear	High shear
Amides and castor oil derivatives																
RHEOBYK-100	100			■			■		■	■						●
RHEOBYK-430	29	Isobutanol/solvent naphtha 9/1	■			■		■	■	■		○			○	●
RHEOBYK-431	25	Isobutanol/monophenyl glycol 6/1	■				■		■	■		○			○	●
RHEOBYK-440	25	Alicyclic amide	■		■				■	■		○			○	●
RHEOBYK-7502*13	100			■		■	■	■	■	■						●
RHEOBYK-7503*13	100			■		■	■	■	■	■						●
RHEOBYK-7590	100			■			■	■	■	■						●
RHEOBYK-7591	100			■				■	■	■						●
Synthetic phyllosilicates																
LAPONITE-7007	100			■	■				■					●	○	○
LAPONITE-EP	100			■	■				■					●	●	○
LAPONITE-RD	100			■	■				■					●	○	○
LAPONITE-RDS	100			■	■				■					●	○	○
LAPONITE-S 482	100			■	■				■					●	○	○
LAPONITE-SL 25	22.5	Water	■		■				■			●			●	●

● Especially recommended    ○ Suitable

\*<sup>9</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

\*<sup>10</sup> Pregel: Pre-dispersion of a powdered rheological additive in suitable medium

\*<sup>11</sup> Not available in North America.    \*<sup>12</sup> Acrylic thickener (HASE)    \*<sup>13</sup> Only available in North America and Europe.



## Rheology additives (4/5)

Product	Product data		Delivery form		Systems			Effective at			Incorporation					
	Active substance (%) *9	Solvent	Liquid	Solid	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Low shear range	Medium shear range	High shear range	Post-addition	Direct addition into the powder component	Pregel *10	Medium shear	High shear
Natural phyllosilicates																
BYK-AQUAGEL 7100	100			■	■				■	■				○	●	
OPTIBENT-602	100			■	■				■	■			●			
OPTIBENT-987	100			■	■				■	■			●			
OPTIBENT-1056	100			■	■				■	■			●			
OPTIBENT-1248	100			■	■				■	■			●			
OPTIBENT-6042	100			■	■				■	■			●			
OPTIBENT-7920	100			■	■				■	■			●	●		
OPTIBENT-7925	100			■	■				■	■			●			
OPTIBENT-NT 10	100			■	■				■	■			●			
OPTIGEL-CG	100			■	■				■	■				●		●
OPTIGEL-CK	100			■	■				■	■				○		●
OPTIGEL-CK XR	100			■	■				■	■				○		●
OPTIGEL-LX	100			■	■				■	■				○		●
OPTIGEL-W 724	100			■	■				■	■				○		●
OPTIGEL-WA	100			■	■				■	■				○		●
OPTIGEL-WH	100			■	■				■	■				○		●
OPTIGEL-WM	100			■	■				■	■				○		●
OPTIGEL-WX	100			■	■				■	■				○		●
OPTIGEL-WX XR	100			■	■				■	■				○		●

● Especially recommended    ○ Suitable

<sup>\*9</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*10</sup> Pregel: Pre-dispersion of a powdered rheological additive in suitable medium

<sup>\*11</sup> Not available in North America.

<sup>\*12</sup> Acrylic thickener (HASE)

<sup>\*13</sup> Only available in North America and Europe.

## Rheology additives (5/5)

Product	Product data		Delivery form		Systems			Effective at			Incorporation					
	Active substance (%) *9	Solvent	Liquid	Solid	Aqueous	Solvent-borne (polar)	Solvent-borne (non-polar)	Solvent-free	Low shear range	Medium shear range	High shear range	Post-addition	Direct addition into the powder component	Pregel*10	Medium shear	High shear
Organically-modified phyllosilicates																
CLAYTONE-40	100			■			■	■	■	■				●		●
CLAYTONE-AF	100			■			■	■	■	■				○		●
CLAYTONE-APA	100			■		■		■	■	■				○		●
CLAYTONE-HT	100			■		■	■	■	■	■				●		●
CLAYTONE-HY	100			■		■	■	■	■	■				○		●
CLAYTONE-MPQ	100			■		■	■		■	■				○		●
CLAYTONE-MPZ	100			■		■		■	■	■				○		●
CLAYTONE-VZ	100			■		■		■	■	■				●		●
GARAMITE-1210	100			■		■	■	■	■	■				○		●
GARAMITE-1958	100			■		■	■	■	■	■				○		●
GARAMITE-2578	100			■		■	■	■	■	■				○		●
GARAMITE-7303	100			■			■	■	■	■				○		●
GARAMITE-7305	100			■		■		■	■	■				○		●
Rheological synergists																
RHEOBYK-405	52	Xylene/alkylbenzenes/isobutanol 5/4/1	■			■		■	■	■		●			●	●
RHEOBYK-7405	52	PPG 600	■			■		■	■	■		●			●	●
RHEOBYK-R 605	52	Xylene/alkylbenzenes/isobutanol 5/4/1	■			■		■	■	■		●			●	●
RHEOBYK-R 606	100		■			■		■	■	■		●			●	●

● Especially recommended    ○ Suitable

<sup>\*9</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*10</sup> Pregel: Pre-dispersion of a powdered rheological additive in suitable medium

<sup>\*11</sup> Not available in North America.    <sup>\*12</sup> Acrylic thickener (HASE)    <sup>\*13</sup> Only available in North America and Europe.

## Surface additives

During the application of liquid coatings on surfaces, a multitude of surface defects can occur. The cause for this is, among others, significantly differing surface tensions. If, for example, the surface tension of the coating is higher than that of the substrate, this manifests itself in poor wetting (high contact angle) and with that poor adhesion and cratering. Also, after the application and while the coating is drying, local surface tension differences can cause unfavorable leveling and the floating of pigments. BYK offers a variety of additives that can improve or even prevent these surface defects. In addition, additives from this product group can also influence the surface slip and increase the cleanability.



## Silicone surface additives (1/4)

Product	Product data			Systems			Effects							Low cyclic alternative	
	Macromer-modified acrylate	Solvent		Reactive group	Aqueous	Solvent-borne	Solvent-free	Increase of surface energy	Surface slip	Leveling	Substrate wetting	Anti-crater effect	Defoaming effect		Easy to clean effect
		Non-volatile matter (%) *14													
BYK-300*15		52	Xylene/isobutanol 4/1			■			■	■	■				BYK-3750 or BYK-3755
BYK-301*15		52	BG		■	■			■	■	■				BYK-3751
BYK-302*15		> 95			■	■	■		■	■	■				BYK-3752
BYK-306*15		12.5	Xylene/monophenyl glycol 7/2			■			■		■	■			BYK-3761 or BYK-3765
BYK-307*15		100			■	■	■		■		■	■			BYK-3762
BYK-310		25	Xylene			■	■		■		■	■			
BYK-314		15	PMA/monophenyl glycol 1,4/1			■			■		■	■			
BYK-315 N		25	PMA/monophenyl glycol 1/1			■			■	■					
BYK-320		52	White spirit/PMA 9/1			■			■	■			■		
BYK-322		> 98				■			■	■			■		
BYK-323*15		> 96				■			■	■			■		BYK-3780
BYK-325 N		52	PMA/monophenyl glycol 1/1			■			■	■					
BYK-326		> 96			■	■	■		■	■	■				
BYK-327		> 99			■	■	■			■	■				
BYK-329		100				■	■			■			■		
BYK-330*15		51	PMA			■			■		■	■			BYK-3763
BYK-331*15		> 98			■	■	■		■	■					BYK-3753
BYK-332		> 97			■	■	■		■	■					
BYK-333		> 97			■	■	■		■		■	■			
BYK-337		15	DPM		■	■			■		■	■			

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

<sup>\*14</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*15</sup> Content of cyclic siloxanes ≥ 0.1 %.

## Silicone surface additives (2/4)

Product	Product data			Systems			Effects							Low cyclic alternative	
	Macromer-modified acrylate	Non-volatile matter (%) *14	Solvent	Reactive group	Aqueous	Solvent-borne	Solvent-free	Increase of surface energy	Surface slip	Leveling	Substrate wetting	Anti-crater effect	Defoaming effect		Easy to clean effect
BYK-342 *15		52	DPM		■	■	■		■		■	■			BYK-3754 or BYK-3756
BYK-345		100			■						■				
BYK-346		45	DPM		■						■				
BYK-347		100			■						■				
BYK-348		100			■						■				
BYK-349		100			■					■	■				
BYK-370 *15		25	Xylene/alkylbenzenes/cyclohexanone/monophenyl glycol 75/11/7/7	OH		■			■	■	■				BYK-3772
BYK-375 *15		25	DPM	OH	■				■		■				
BYK-377 *15		100		OH		■	■		■		■				BYK-3771
BYK-378 *15		100			■	■	■		■		■	■			BYK-3764
BYK-379		100			■	■	■		■		■	■			
BYK-3400		70	Water		■					■	■				
BYK-3420		100			■						■				
BYK-3450		100			■						■				
BYK-3451		100			■						■				
BYK-3455		> 90			■		■			■	■				
BYK-3456		> 90			■		■			■	■				
BYK-3480		100			■					■	■	■	■		
BYK-3481		100			■					■	■	■	■		

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

<sup>\*14</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*15</sup> Content of cyclic siloxanes  $\geq 0.1$  %.

## Silicone surface additives (3/4)

Product	Product data			Systems			Effects							Low cyclic alternative
	Macromer-modified acrylate	Non-volatile matter (%) *14	Solvent	Reactive group	Aqueous	Solvent-borne	Solvent-free	Increase of surface energy	Surface slip	Leveling	Substrate wetting	Anti-crater effect	Defoaming effect	
BYK-3483		100			■		■			■	■	■	■	
BYK-3550	■	52	PMA			■				■	■			
BYK-3558		> 98				■	■		■	■	■	■		
BYK-3565	■	> 97			■	■	■	■		■		■		
BYK-3566	■	> 97			■	■	■	■		■		■		
BYK-3568	■	> 97				■	■	■	■	■				
BYK-3740		52	Aromatic-free white spirit/PMA 9/1			■			■	■			■	
BYK-3741		≥ 98				■	■		■	■			■	
BYK-3750		52	Xylene/isobutanol 4/1			■			■					
BYK-3751		52	BG		■	■			■	■	■			
BYK-3752		97			■	■	■		■	■	■			
BYK-3753		> 99			■	■	■		■	■				
BYK-3754		52	DPM		■	■	■		■		■	■		
BYK-3755		22	Xylene/PMA 1.6/1			■			■	■	■			
BYK-3756		24	DPM		■	■	■		■		■	■		
BYK-3760		> 99			■	■	■		■		■	■		
BYK-3761		12.5	Xylene/monophenyl glycol 7/2			■			■		■			
BYK-3762		> 96				■	■		■		■	■		
BYK-3763		51	PMA			■			■		■	■		
BYK-3764		100			■	■	■		■		■	■		

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

<sup>\*14</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*15</sup> Content of cyclic siloxanes ≥ 0.1 %.

## Silicone surface additives (4/4)

Product	Product data			Systems			Effects							Low cyclic alternative	
	Macromer-modified acrylate	Non-volatile matter (%) *14	Solvent	Reactive group	Aqueous	Solvent-borne	Solvent-free	Increase of surface energy	Surface slip	Leveling	Substrate wetting	Anti-crater effect	Defoaming effect		Easy to clean effect
BYK-3765		11.5	PMA/monophenyl glycol 3.3/1			■			■		■	■			
BYK-3771		100		OH		■	■		■		■				
BYK-3772		25	PMA/monophenyl glycol 93/7	OH		■			■	■	■				
BYK-3780		100				■			■	■			■		
BYK-SILCLEAN 3700		25	PMA	OH		■			■	■	■			■	
BYK-SILCLEAN 3701 *15		100		Epoxy		■	■		■	■				■	
BYK-SILCLEAN 3710 *15		100		Acrylic			■		■	■	■			■	
BYK-UV 3500 *15		100		Acrylic			■		■	■	■				
BYK-UV 3505		40	TPGDA	Acrylic	■	■	■		■		■			■	
BYK-UV 3510 *15		100				■	■			■	■				BYK-UV 3511
BYK-UV 3511		100				■	■			■	■				
BYK-UV 3530		100		Acrylic	■		■			■	■				
BYK-UV 3570 *15		70	PONPGDA	Acrylic			■		■	■	■				
BYK-UV 3575 *15		40	TPGDA	Acrylic	■	■	■		■	■	■				
BYK-UV 3576		40	TPGDA	Acrylic	■	■	■			■	■				
BYK-UV 3590		100		Acrylic			■		■						
BYK-UV 3595		100		Acrylic			■		■	■					
BYKETOL-SPECIAL		< 1	Alkylbenzenes/DIBK 5/1			■				■			■		

Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

<sup>\*14</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*15</sup> Content of cyclic siloxanes  $\geq 0.1$  %.

## Silicone-free surface additives (1/2)

Product	Product data					Systems			Effects							
	Solvent					Reactive group	Aqueous	Solvent-borne	Solvent-free	Increase of surface energy	Leveling	Substrate wetting	Anti-crater effect	Defoaming effect	Tape release	Reduction in pre-drying
	Acrylate	Macromer-modified acrylate	Other	Active substance (%) *16												
BYK-350	■			100				■	■		■					
BYK-352	■			80	PMA			■	■		■			■		
BYK-354	■			51	Solvent naphtha/DIBK 9/1			■	■		■			■		
BYK-355	■			52	PMA			■			■					
BYK-356	■			100				■	■		■					
BYK-358 N	■			52	Alkylbenzenes			■	■		■		■			
BYK-359	■			100				■	■		■			■		
BYK-361 N	■			100				■	■		■		■			
BYK-381	■			52	DPM		■				■	■				
BYK-390	■			50	Xylene			■						■		
BYK-392	■			52	PMA			■			■			■		
BYK-394	■			80	DPM	OH		■	■						■	
BYK-397	■			70	PMA			■			■			■		
BYK-399			■	100				■			■	■		■		
BYK-3410			■	100			■					■				
BYK-3540			■	80.5	PNB		■				■		■	■		
BYK-3560		■		100			■	■		■	■					

\*16 The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.



## Silicone-free surface additives (2/2)

Product	Product data					Systems			Effects							
	Solvent					Reactive group	Aqueous	Solvent-borne	Solvent-free	Increase of surface energy	Leveling	Substrate wetting	Anti-crater effect	Defoaming effect	Tape release	Reduction in pre-drying
	Acrylate	Macromer-modified acrylate	Other	Active substance (%) * 16												
BYK-DYNWET 800			■	100			■					■				
BYK-DYNWET 810			■	100			■					■				
BYK-UV 3535			■	100		Acrylic/OH	■	■	■		■					
BYKETOL-AQ			■	4	PMA		■							■		
BYKETOL-OK			■	< 1	Alkylbenzenes/DIBK/dipentene 14/5/1			■						■		
BYKETOL-PC			■	90	Water		■									■
BYKETOL-WA			■	100	BG		■				■		■	■		
BYKETOL-WB			■	100			■				■		■	■		

\*16 The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

## Silicone-free surface additives, powdered

Product	Product data					Systems			Effects			
	Carrier				Acrylate content (%)	Aqueous	Solvent-borne	Solvent-free	Leveling	Anti-crater effect	Pigment wetting	Matting
	Acrylate	Other	Non-volatile matter (%) <sup>*17</sup>									
BYK-360 P	■		100	Silicon dioxide (silica)	57			■	■	■		
BYK-364 P <sup>*18</sup>	■		100	Silicon dioxide (silica)	60			■	■	■	■	
BYK-366 P	■		100	Silicon dioxide (silica)	63			■	■	■		
BYK-368 P	■		100	Silicon dioxide (silica)	63			■	■	■		
BYK-3900 P	■		100	Silicon dioxide (silica)	63			■	■	■		
BYK-3902 P	■		100	Silicon dioxide (silica)	63			■	■	■		
BYK-3931 P <sup>*19</sup>	■		100	Silicon dioxide (silica)	63			■		■		
BYK-3932 P	■		100	Silicon dioxide (silica)	63			■	■	■		
BYK-3933 P	■		100	Silicon dioxide (silica)	63			■	■	■		
BYK-3938 P		■	100					■				■

<sup>\*17</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*18</sup> OH-functional

<sup>\*19</sup> Synergist, use in combination with standard flow additives

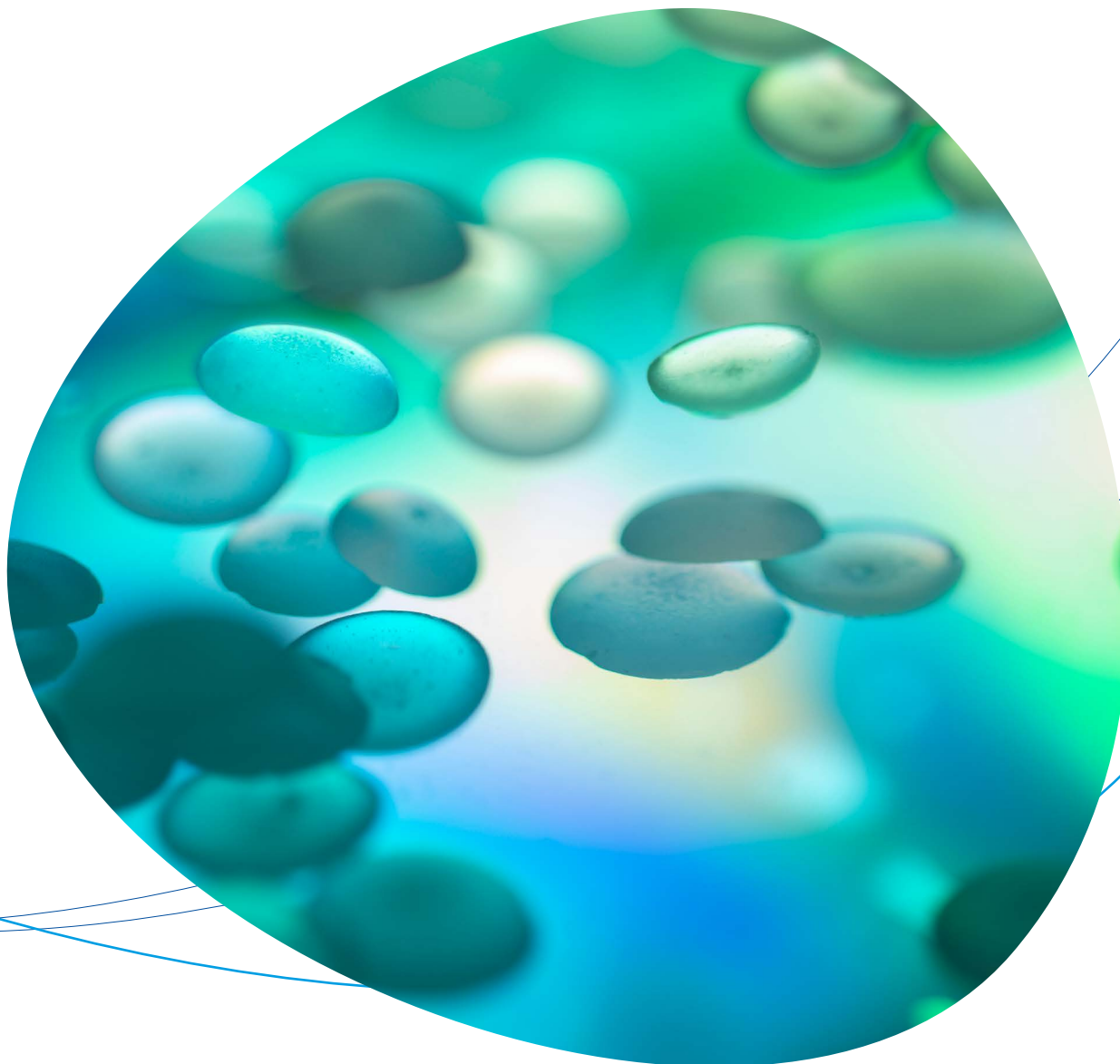
## Nano additives

Product	Product data					Systems			Effects			
	Aluminum oxide	Silicon dioxide (silica)	Zinc oxide	Particle content (%)	Carrier	Particle size D50 (nm)	Aqueous	Solvent-borne	Solvent-free	Scratch resistance	Abrasion resistance	UV protection
BYK-UV 3518		■		45	PM	20		■	■	■	■	
BYK-UV 3519		■		40	EOTMPTA	20		■	■	■	■	
NANOBYK-3603	■			40	Water	25	■			■		
NANOBYK-3605		■		50	HDDA	20		■	■	■	■	
NANOBYK-3611	■			30	PMA	20		■	■	■		
NANOBYK-3620		■		30	Water	< 100	■			■	■	
NANOBYK-3650		■		25	PMA/PM	20		■		■		
NANOBYK-3652		■		25	PMA/PM	20		■		■		
NANOBYK-3822			■	40	Water	20	■					■

## Wax additives

Wax additives can be used in many applications, for example to control the processability of products or to improve the surface properties. There are waxes based on natural, semi-synthetic, and synthetic raw materials. The chemical composition, melting point, and polarity of a wax determine its basic properties. The final properties can additionally be influenced by modifications and the subsequent manufacturing process.

BYK sells wax additives in various preparations, such as micronized wax additives, aqueous emulsions and dispersions, and solvent-based dispersions.



## Micronized wax additives (1/3)

Product	Product data				Systems			Effects									
	Wax base	Melting point (°C)	Particle size distribution (µm)		Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency
			D50	D90													
CERAFLOUR 913	Polypropylene wax	160	18	31	■	■					■	■		■			
CERAFLOUR 914	Polypropylene wax	160	24	36	■	■								■			
CERAFLOUR 915	Polypropylene wax	160	34	57	■	■								■			
CERAFLOUR 916	Modified HDPE wax/polymer blend	135	46	82	■	■								■			
CERAFLOUR 917	Organic polymer	135	42	64	■	■		■			■			■			
CERAFLOUR 920	Organic polymer		5	16	■	■		■				■	■				
CERAFLOUR 921*20	Organic polymer		6	18	■	■	■	■				■	■				
CERAFLOUR 924	Modified HDPE wax	135	12	20	■	■	■	■			■	■					
CERAFLOUR 925 N	Modified polyethylene wax	115	6	10	■	■		■	■								
CERAFLOUR 927 N	Modified HDPE wax	125	9	15	■			■				■					
CERAFLOUR 929 N	Modified polyethylene wax	115	8	15	■	■		■				■					
CERAFLOUR 950	Modified HDPE wax	135	9	15		■	■	■			■	■					
CERAFLOUR 960	Modified amide wax	145	4	11			■								■	■	
CERAFLOUR 961	Modified polyethylene wax	140	5	11			■	■							■		

\*20 Only available in North America.

## Micronized wax additives (2/3)

Product	Product data				Systems			Effects									
	Wax base	Melting point (°C)	Particle size distribution (µm)		Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency
			D50	D90													
CERAFLOUR 962	Modified polyethylene wax	140	9	21			■	■							■		
CERAFLOUR 964	Amide wax	75	20	50			■								■		
CERAFLOUR 967	Synthetic polymer						■							■			
CERAFLOUR 970	Polypropylene wax	160	9	14		■	■			■		■					
CERAFLOUR 988	Blend of Fischer-Tropsch wax and amide wax	140	6	13		■	■	■				■					
CERAFLOUR 991	Fischer-Tropsch wax	115	5	9		■	■	■	■								
CERAFLOUR 993	Amide wax	145	13	31			■					■			■	■	
CERAFLOUR 994	Amide wax	145	5	10		■	■	■					■				
CERAFLOUR 1000	Biopolymer	175	5	11	■	■	■	■			■	■					■
CERAFLOUR 1001	Biopolymer	175	3	7	■	■	■	■			■	■					
CERAFLOUR 1002	Biopolymer	175	6	31	■	■	■	■			■	■		■			
CERAFLOUR 1003	Corn starch		13	18	■	■						■		■			
CERAFLOUR 1004	Corn starch		9	14	■	■					■	■					
CERAFLOUR 1010	Rapeseed wax	70	6	16	■	■	■	■	■			■					

\*20 Only available in North America.

# Micronized wax additives (3/3)

Product	Product data				Systems			Effects									
	Wax base	Melting point (°C)	Particle size distribution (µm)		Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency
			D50	D90													
CERAFLOUR 1050	Polyethylene wax	125	5	10	■	■	■	■	■			■					
CERAFLOUR 1051	Modified polyethylene wax	125	6	10	■	■	■	■	■			■					
CERAFLOUR 1052	Modified polyethylene wax	125	6	10	■	■	■	■	■			■					

\*20 Only available in North America.

## Wax additives – Wax emulsions and dispersions in water (1/2)

Product	Product data								Systems			Effects											
	Wax base	Melting point (°C)	Non-volatile matter (%) <sup>*21</sup>	Solvent	pH value	Emulsifier system			Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency	Anti-settling	Effect pigment orientation
						Non-ionic	Anionic	Cationic															
AQUACER 497	Paraffin wax	60	50	Water	5.5	■			■				■								■		
AQUACER 501	Oxidized HDPE wax	130	35	Water	9	■			■			■											
AQUACER 507	Oxidized HDPE wax	130	35	Water	9.7		■		■			■	■										■
AQUACER 513	Oxidized HDPE wax	135	35	Water	9.2	■			■			■											
AQUACER 526	Modified EVA copolymer wax	105	30	Water	9.7		■		■														■
AQUACER 531	Modified HDPE wax	130	45	Water	3.5	■			■			■	■								■		
AQUACER 532	Modified HDPE wax	130	40	Water	3.5	■			■			■	■										
AQUACER 533	Modified paraffin wax	95	40	Water	9.5		■		■				■								■		
AQUACER 535 N	Modified paraffin wax	105	30	Water	10	■			■			■	■		■						■		
AQUACER 537 N	Modified paraffin wax	110	30	Water	9.5		■		■				■								■		
AQUACER 539	Modified paraffin wax	90	35	Water	9.5	■			■			■	■		■						■		
AQUACER 541	Montane ester wax	80	30	Water	5.5	■			■			■	■										
AQUACER 552	Oxidized HDPE wax	130	35	Water	9	■			■			■											
AQUACER 561	Bees wax	65	25	Water	5.5	■			■												■		
AQUACER 570	Sunflower/carnauba wax blend	85	40	Water	5	■			■														
AQUACER 571	Modified rice bran wax	80	25	Water	9.75	■			■			■									■		
AQUACER 593	Modified polypropylene wax	160	30	Water	9	■			■					■									

<sup>\*21</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*22</sup> Only available in North America.



## Wax additives – Wax emulsions and dispersions in water (2/2)

Product	Product data					Systems						Effects												
	Wax base			Solvent		Emulsifier system																		
		Melting point (°C)	Non-volatile matter (%) <sup>*21</sup>			pH value	Non-ionic	Anionic	Cationic	Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency	Anti-settling	Effect pigment orientation
AQUACER 840	Oxidized HDPE wax	135	30	Water	5																			
AQUACER 1013	Oxidized HDPE wax	135	35	Water	9.2																			
AQUACER 1039	Modified paraffin wax	90	35	Water	9.5																			
AQUACER 1541	Carnauba wax	85	25	Water	10																			
AQUACER 1547	Oxidized HDPE wax	125	35	Water	9.7																			
AQUACER 2650	Carnauba wax	85	30	Water	4.5																			
AQUACER 8035 <sup>*22</sup>	Oxidized HDPE wax	140	35	Water	9																			
AQUACER 8335 <sup>*22</sup>	Modified paraffin wax	58	45	Water	11																			
AQUACER 8840 <sup>*22</sup>	EAA copolymer wax	110	30	Water	9																			
AQUAMAT 208	Oxidized HDPE wax	135	35	Water	8.5																			
AQUAMAT 263	Oxidized HDPE wax	130	35	Water/PNB 12/1	9.5																			
AQUAMAT 272 N	Modified polyethylene wax	125	55	Water	4																			
AQUATIX 8421	Modified EVA copolymer wax	105	20	Water	5.5																			
HORDAMER PE 02	Polyethylene primary dispersion	95	40	Water	11																			

<sup>\*21</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*22</sup> Only available in North America.

## Wax additives – Wax dispersions in organic solvents (1/2)

Product	Product data						Systems			Effects											
	Wax base	Melting point (°C)	Non-volatile matter (%) <sup>*23</sup>	Solvent	Particle size distribution (µm)		Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency	Anti-settling	Effect pigment orientation
					D50	D90															
CERACOL 79	Carnauba wax	85	20	DPM	2	6															
CERACOL 83	Fischer-Tropsch wax	105	20	Isopropanol	2.5	6															
CERACOL 600	Modified hydrocarbon wax	100	20	PMA	2	5															
CERACOL 601	Carnauba wax	85	20	DPM	2	6															
CERACOL 605	Carnauba wax	85	20	BG	2	3															
CERACOL 609 N	Wax-modified lanolin	85	20	Aromatic hydrocarbons/ isopropanol 1/1	3	6															
CERACOL 610	Microcrystalline wax	95	15	Low-naphthalene aromatic hydrocarbons	5	9															
CERACOL 615	Microcrystalline wax	95	20	DPM	6	10															
CERACOL 624	Carnauba wax	85	12	DPM	4	7															
CERAFAX 100	EVA copolymer wax	105	10	Xylene/BuAc 1/1																	
CERAFAX 103	EVA copolymer wax	110	6	Xylene/BuAc/butanol 7/8/1																	
CERAFAX 106	EVA copolymer wax	105	6	Xylene/BuAc/butanol 7/8/1																	
CERAFAX 110	EVA copolymer wax	100	6	BuAc/butanol 15/1																	
CERAFAX 111	Polyethylene wax	110	12.5	BuAc																	
CERAFAX 117	Modified Fischer-Tropsch wax	110	25	Aromatic-free white spirit																	

<sup>\*23</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

## Wax additives – Wax dispersions in organic solvents (2/2)

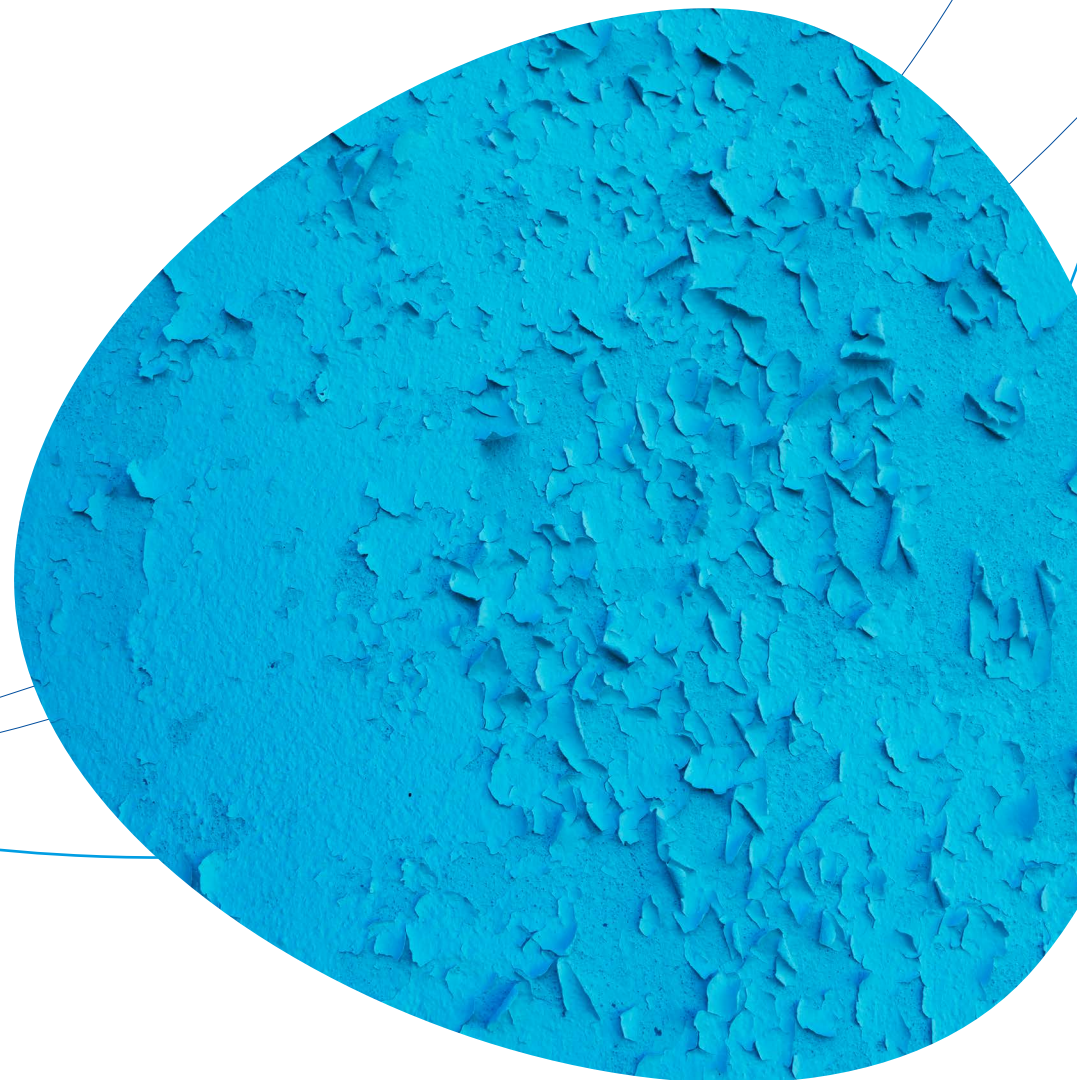
Product	Product data						Systems			Effects										
	Wax base			Solvent	Particle size distribution (µm)															
					D50	D90														
Melting point (°C)	Non-volatile matter (%) *2,3			Aqueous	Solvent-borne	Solvent-free	Mechanical resistance	Surface slip	Anti-slip	Soft-feel effect	Matting	Sandability	Structure/texture	Degassing of powder coatings	Pigment wetting in powder coatings	Anti-blocking/water repellency	Anti-setting	Effect pigment orientation		
CERAFAX 127 N	Modified Fischer-Tropsch wax	120	15	Aromatic hydrocarbons	3	7														
CERAFAX 140 N	Carnauba wax	85	15	Isobutanol/aromatic hydrocarbons 13/4																
CERAFAX 151	Oxidized HDPE wax	135	25	Xylene																
CERAMAT 241	Oxidized HDPE wax	135	20	Xylene/BuAc 1/1																
CERAMAT 250	Polyethylene wax	120	40	BuAc																
CERAMAT 258	Oxidized HDPE wax	135	17.5	BuAc																
CERATIX 8561	EVA copolymer wax	105	4.7	Xylene/BuAc/Butanol 3/6/1																
CERATIX 8563	EVA/EAA copolymer wax blend	110	4.4	Xylene/BuAc/Butanol 3/6/1																
CERATIX 8566	EVA copolymer wax	100	4.7	BuAc/Butanol 9/1																

<sup>\*23</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

## Adhesion promoters

In numerous coating applications, the interactions at interfaces are a decisive influencing factor for efficiency in the end application. Interfaces exist both between the coating and substrate and between the individual coating layers or aged coatings. The aim of adhesion promoters is to create as many stable additional physical or chemical bonds as possible at these phases.

Additives from BYK can, for example, positively influence the adhesion of coatings to different substrates, the tolerance to surface contamination, and the resistance to moisture and corrosion.



## Adhesion promoters

Product	Product data									Systems			Substrates			
	OH	NR <sub>3</sub>	COO <sup>-</sup>	COOH	Si(OR) <sub>3</sub>	Solvent	Non-volatile matter (%) <sup>*24</sup>	Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne	Solvent-free	Metal	Glass	Plastics	Aged coatings
BYK-3941 P	■			■			63 <sup>*25</sup>					■	■			
BYK-3942 P	■	■					63 <sup>*25</sup>					■	■			
BYK-4500		■				TMBP-MIB	40		28	■	■		■		■	■
BYK-4509	■		■			PM	80	29	29	■	■		■	■		
BYK-4510	■			■		PM	80	30		■	■		■	■		
BYK-4511		■			■	PMA	40		136		■	■	■	■		
BYK-4512	■	■				PMA	60		56		■		■	■		
BYK-4513	■	■				DPM	41		60	■			■			

<sup>\*24</sup> The active substance content does not necessarily correspond to the non-volatile matter content. Depending on the composition of the product and the analytical method of determination, the non-volatile matter content can be higher or lower. The active substance content serves as the basis for calculating the dosage.

<sup>\*25</sup> Active substance on solid silica carrier

## Processing additives

Processing additives from BYK are used to achieve various effects in coating applications. These additives have generally positive influences on a wide range of processing parameters and the properties of the final product. Such effects can, for example, be the prevention of gelling and skin formation, lowering of curing temperature and duration, or increasing of conductivity.



## Processing additives

Product	Product data			Systems			Effect
	Solvent	Acid value (mg KOH/g)	Amine value (mg KOH/g)	Aqueous	Solvent-borne	Solvent-free	
BYK-3950 P						■	Improved pigment and filler absorption, viscosity reduction, improved leveling, and degassing of powder coatings
BYK-3951 P						■	Improved pigment and filler absorption, viscosity reduction, improved leveling, and degassing of powder coatings
BYK-3955 P						■	Improved pigment and filler absorption, especially of carbon blacks, viscosity reduction, improved leveling, and degassing of powder coatings
BYK-CATALYST 450	PM/PG/water 64/5/3	60	10	■	■		Blocked acid catalyst (acid content: 20 %), reduction in baking temperature and time
BYK-ES 80	Isobutanol	140	140		■		Increased conductivity in the liquid coating
BYKANOL-A	Isobutanol/water/dearomatized white spirit 10/1/6	13	57		■		Anti-gelling, prevention of skin formation in alkyd systems



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