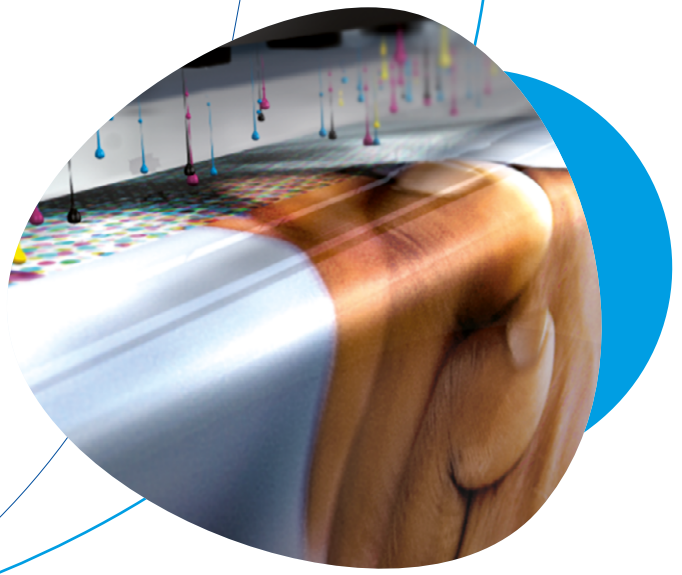
BYK

WAX ADDITIVES

DEFOAMERS

PRODUCT GUIDE

INKJET INKS



SURFACE ADDITIVES

WETTING AND DISPERSING ADDITIVES

Contents

Introduction

Inkjet printing is becoming increasingly important in many areas in which substrates have traditionally been printed using exclusively conventional means, e.g. in packaging printing on paper, cardboard, and foil, on ceramic substrates, or on textiles. For all applications, BYK offers the fitting additives to support the formulation of inkjet inks, even in areas in which indirect contact with food is required. BYK additives ensure low-viscosity and long-term stable inkjet inks with optimum color strength, improve the jetting properties and abrasion resistance of aqueous, radiation-curing, solvent-borne, and ceramic inkjet inks.

For additional information on additives and technical topics, please contact us:
graphicarts.byk@altana.com

Note

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Quality

As a leading global supplier of specialty chemicals, our innovative additives and differentiated solutions optimize product and material properties as well as production and application processes. All prototypes undergo numerous tests in chemical analysis, material testing, and application technology. Our customers benefit from fast, effective, and comprehensive solutions as well as tailor-made products. BYK's technical expertise combined with our understanding of market requirements and challenges ensures smooth integration of our additives into their individual applications.

Worldwide service

BYK provides worldwide service in every aspect, from customer service and regulatory expertise to technical service and more. Our 35 laboratory locations across the globe offer local support, and our production sites located in Germany, the Netherlands, the UK, the USA, and China manufacture our products locally, ensuring reliable product delivery to our largest markets.

Sustainability

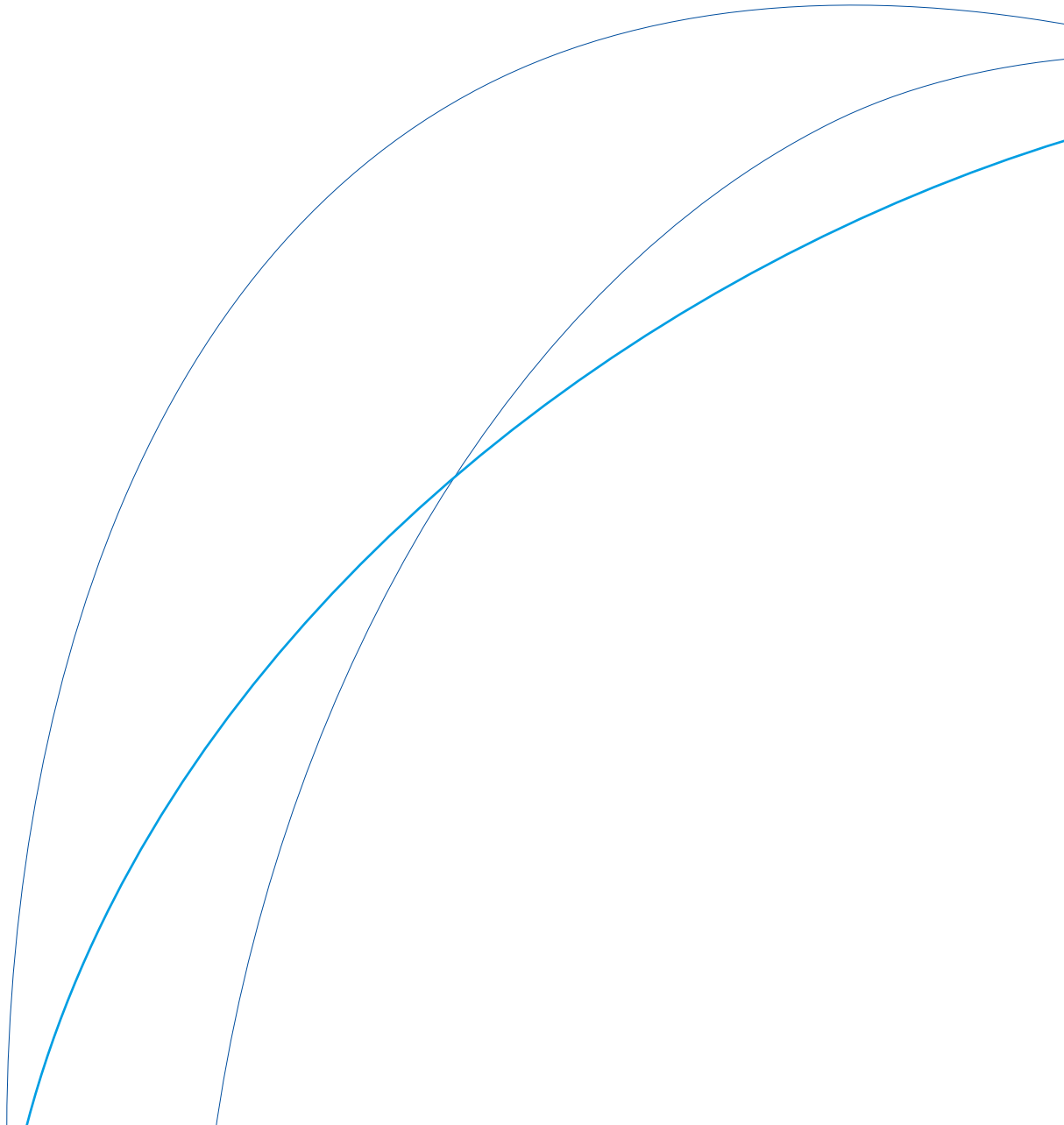
BYK aims for sustained profitable growth through a triad of economic, ecological, and corporate social responsibility. BYK works to develop the most sustainable production processes, conserve natural resources, protect human life, and minimize the burden on the environment. Our products are designed to increase sustainability in our customers' applications.

Regulatory

BYK's local and global regulatory specialists provide worldwide support with expertise to ensure product safety and compliance. Our customer-focused regulatory service allows us to make our extensive knowledge of regulatory provisions available globally. The information our customers need, whether it be for initial stages of product development, for making final purchasing decisions, or for documenting formulations, is provided quickly and accurately.

Abbreviations

BuAc	Butyl acetate
BG	Butylglycol
DIBK	Diisobutyl ketone
DPM	Dipropylene glycol monomethyl ether
GPTA	Propoxylated glyceryl triacrylate
HDDA	Hexanediol diacrylate
PM	Methoxypropanol
PMA	Methoxypropyl acetate
PONPGDA	Propoxylated neopentyl glycol diacrylate
SMA	Styrene maleic anhydride
TPGDA	Tripropylene glycol diacrylate



Wetting and dispersing additives

It is imperative that pigment particles are stable and suspended uniformly in inkjet ink formulations for high-speed and high-resolution printing. BYK's wetting and dispersing additives help formulators improve their pigment dispersion process (wetting, dispersing, and stabilizing pigment particles) by reducing the dispersion time, lowering the viscosity, and helping to increase pigment loading. These additives are based on various chemistries (acid esters, polyurethanes, amines, and acrylates, including controlled polymerization technology for acrylates) to address organic, inorganic, and filler dispersion in aqueous, solvent-borne, and UV-curing systems. BYKJET and DISPERBYK are some of BYK's wetting and dispersing additives available for inkjet ink applications.

Wetting and dispersing additives for solvent-borne inkjet inks

Product	Description	Chemistry						Product data				Pigments						Regulatory	
		Fatty acids	Phosphoric acid ester	Hyperbranched polyamines	Polyurethanes	Polyacrylates/SMA-based	Other	Solvent/reactive diluent	Active substance (%)	Acid value (mg KOH/g)	Amine value (mg KOH/g)	Cyan (PB 15:3/PB 15:4)	Magenta (e.g. PV 19/PR122)	Yellow (e.g. PY 74/ PY 139/PY 151/PY 155)	Yellow (PY 150)	Black (PBk 7)	White (PW 6)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYKJET-9131	Solution of a structured copolymer with pigment-affinic groups					■		PMA/BG 1/1	40		2		■	■				–	–
BYKJET-9132	Solution of polymethacrylate					■		PMA/BG 1/1	40	6	28		■	■				○	○
BYKJET-9151	Styrene maleic anhydride copolymer					■			> 98.5	8	18	■	■	■		■		●	●
BYKJET-9152	Copolymer with pigment-affinic groups					■			99	6	19	■	■	■		■		–	–
DISPERBYK-111	Phosphoric acid ester		■						100	129							■	●	●
DISPERBYK-161	Solution of modified polyurethane				■			PMA/BuAc 6/1	30		11	■	■	■		■		●	–
DISPERBYK-163	Solution of modified polyurethane				■			Xylene/BuAc/PMA 3/1/1	45		10	■	■	■		■		●	–
DISPERBYK-2001	Solution of a structured acrylate copolymer with pigment-affinic groups					■		PMA/BG/PM 2/2/1	46	19	29		■					○	○
DISPERBYK-2152	Hyperbranched polyester			■					> 99								■	○	○
DISPERBYK-2155	Polyglycol polyester-modified polyalkylene imine			■					100		48					■		●	●
DISPERBYK-2200*[1]	High molecular weight copolymer with pigment-affinic groups			■					100			■			■	■	■	–	–
DISPERBYK-2205*[1]	High molecular weight copolymer with pigment-affinic groups			■					100	24	27	■			■		■	●	●

● Refer to food contact sheet ○ Not evaluated – No

For detailed information on food regulatory status, please visit www.byk.com/en/service/regulatory-affairs/food-contact or contact our BRIEF team.

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.

*[1] Delivery form: pellets

Wetting and dispersing additives for UV inkjet inks (solvent-free)

Product	Description	Chemistry						Product data				Pigments						Regulatory	
		Fatty acids	Phosphoric acid ester	Hyperbranched polyamines	Polyurethanes	Polyacrylates/SMA-based	Other	Solvent/reactive diluent	Active substance (%)	Acid value (mg KOH/g)	Amine value (mg KOH/g)	Cyan (PB 15:3/PB 15:4)	Magenta (e.g. PV 19/PR122)	Yellow (e.g. PY 74/ PY 139/PY 151/PY 155)	Yellow (PY 150)	Black (PBk 7)	White (PW 6)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYKJET-9132	Solution of polymethacrylate					■		PMA/BG 1/1	40	6	28	■	■	■		■		○	○
BYKJET-9150	Solution of a structured copolymer with pigment-affinic groups					■		PONPGDA	70	5	12	■	■	■		■	■	●	●
BYKJET-9151	Styrene maleic anhydride copolymer					■			> 98.5	8	18	■	■	■		■	■	●	●
BYKJET-9152	Copolymer with pigment-affinic groups					■			99	6	19	■	■	■		■		–	–
DISPERBYK-111	Phosphoric acid ester		■						100	129							■	●	●
DISPERBYK-168	Solution of modified polyurethane				■			Dicarboxylic acid ester	30		10.5	■	■	■	■	■		●	●
DISPERBYK-168 TF	Solution of modified polyurethane				■			GPTA	30		10.5	■	■	■	■	■		●	●
DISPERBYK-2030	Solution of a copolymer with pigment-affinic groups					■		PONPGDA	80	5	13	■	■	■		■		●	●
DISPERBYK-2152	Hyperbranched polyester			■					> 99								■	○	○
DISPERBYK-2205*[2]	High molecular weight copolymer with pigment-affinic groups			■					100	24	27						■	●	●

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*[2] Delivery form: pellets

Wetting and dispersing additives for aqueous inkjet inks

Product	Description	Chemistry						Product data				Pigments							Regulatory	
		Fatty acids	Phosphoric acid ester	Hyperbranched polyamines	Polyurethanes	Polyacrylates/SMA-based	Other	Solvent/reactive diluent	Active substance (%)	Acid value (mg KOH/g)	Amine value (mg KOH/g)	Cyan (PB 15:3/PB 15:4)	Magenta (e.g. PV 19/PR122)	Yellow (e.g. PY 74/ PY 139/PY 151/PY 155)	Yellow (PY 150)	Black (PBk 7)	White (PW 6)	Green/orange (e.g. PG 7/PG 36/ PO 34/PO 43)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYKJET-9151	Styrene maleic anhydride copolymer					■			> 98.5	8	18	■	■	■		■			●	●
BYKJET-9152	Copolymer with pigment-affinic groups					■			99	6	19	■	■	■		■			–	–
BYKJET-9170	Solution of modified styrene maleic acid copolymer					■		Water	40	7	7	■	■	■		■			●	●
BYKJET-9171	Solution of an acrylic block copolymer with aminic pigment-affinic groups					■		Water	40		28		■	■		■		■	●	●
BYKJET-9175	Aqueous solution of a salted methacrylate block copolymer					■		Water	40	27	22	■	■	■		■	■		●	●
BYKJET-9177	Aqueous solution of a modified polyether						■	Water	52		5		■	■		■		■	●	●
DISPERBYK-190	Solution of modified styrene maleic acid copolymer					■		Water	40	10		■	■	■		■	■	■	●	●
DISPERBYK-192*[3]	Modified polyether	■							100					■					●	●
DISPERBYK-2010	Solution of modified styrene maleic acid copolymer					■		Water	40	20	20						■		●	●
DISPERBYK-2014	Copolymer with pigment-affinic groups						■		100		19	■	■	■		■		■	●	●
DISPERBYK-2018	Solution of a copolymer with pigment-affinic groups					■		Water	52		26						■		●	●
DISPERBYK-2019	Solution of a copolymer with pigment-affinic groups					■		Water	52		22						■		●	●

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*[3] From bio-based raw materials

Surface additives

Surface additives provide a range of benefits for aqueous, solvent-borne, and UV-curing systems. These benefits include static and dynamic surface tension reduction, improved substrate wetting, leveling, flow, surface slip/anti-slip, anti-blocking, and scratch and abrasion resistance. They also increase the open time, create easy-to-clean surfaces, and increase the surface energy of the cured film. BYK's surface additives (e.g., BYK, BYK-DYNWET, BYK-UV, NANOBYK) are based on various chemistries such as polysiloxanes and polyacrylates to provide solutions to formulators' challenges and help achieve performance requirements. The BYK-UV series is radiation curable and takes part in the ink's crosslinked network, eliminating leaching of the additive. BYK's surface additives can be used in all digital printing processes and several of these additives are compliant with various regulations for direct and indirect food contact application.

Surface additives for solvent-borne inkjet inks

Product	Description	Chemistry				Product data		Effect												Dosage	Regulatory	
								Surface tension reduction														
		Silicone	Silicone-free	OH-functional	Acrylic-functional	Solvent/reactive diluent	Active substance (%)	Strong	Medium	No/low	Dynamic	Increase of surface energy	Substrate wetting	Surface slip	Flow/leveling	Anti-crater	Good recoatability	Gloss	Scratch resistance	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYK-307*4/BYK-3762	Polyether-modified polydimethylsiloxane	■					100	■					■	■	■	■				0.05–0.5	●	●
BYK-315 N	Solution of a polyester-modified polymethylalkylsiloxane	■				PMA/phenoxyethanol 1/1	25		■						■	■				0.05–0.6	○	○
BYK-333	Polyether-modified polydimethylsiloxane	■					> 97	■					■	■		■		■		0.05–0.3	●	●
BYK-354	Solution of a polyacrylate		■			Solvent naphtha/DIBK 9/1	51			■					■		■	■		0.1–1.5	●	●
BYK-361 N	Polyacrylate		■				100			■					■		■	■		0.05–0.5	●	●
BYK-378*4/BYK-3764	Polyether-modified polydimethylsiloxane	■					100	■					■	■	■	■	■			0.5–2.0	●	●
BYK-379	Polyether-modified polydimethylsiloxane	■					100	■			■		■	■	■	■				0.1–1.5	●	●
BYK-3550	Solution of a silicone-modified polyacrylate	■				PMA	52		■				■		■	■	■			0.1–1.0	○	○
BYK-3560	Polyether macromer-modified polyacrylate		■				100			■		■			■					0.1–1.0	●	●
BYK-3565	Silicone and polyether macromer-modified polyacrylate	■					> 97			■		■			■					0.1–1.0	–	–
BYK-3566	Silicone and polyether macromer-modified polyacrylate	■					> 97			■		■			■					0.1–2.0	–	–
BYK-3760	Polyether-modified polydimethylsiloxane	■					> 99	■					■	■	■					0.1–2.0	●	●
NANOBYK-3650*5	Dispersion of surface-treated silica nanoparticles	■				PMA/PM	25*6												■	0.5–6.0	○	○
NANOBYK-3652*5	Dispersion of surface-treated silica nanoparticles	■				PMA/PM	25*6												■	0.5–6.0	○	○

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

*4 Content of cyclic siloxanes ≥ 0.1 %. *5 Particle size D50: 20 nm *6 Nanoparticle content (%)

Surface additives for UV inkjet inks (solvent-free)

Product	Description	Chemistry				Product data		Effect											Dosage	Regulatory	
								Surface tension reduction													
		Silicone	Silicone-free	OH-functional	Acrylic-functional	Solvent/reactive diluent	Active substance (%)	Strong	Medium	No/low	Dynamic	Increase of surface energy	Substrate wetting	Surface slip	Flow/leveling	Anti-crater	Good recoatability	Gloss	Scratch resistance	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYK-307*7/BYK-3762	Polyether-modified polydimethylsiloxane	■					100	■					■	■	■	■				0.1–1.0	●	●
BYK-361 N	Polyacrylate		■				100			■					■		■	■		0.05–0.5	●	●
BYK-377*7/BYK-3771	Polyether-modified, hydroxy-functional polydimethylsiloxane	■		■			100	■					■	■		■				0.05–1.0	●	●
BYK-378*7/BYK-3764	Polyether-modified polydimethylsiloxane	■					100	■			■		■	■	■	■	■			0.01–0.3	●	●
BYK-379	Polyether-modified polydimethylsiloxane	■					100	■			■		■	■	■	■				0.1–1.5	●	●
BYK-3560	Polyether macromer-modified polyacrylate		■				100			■		■			■					0.1–2.0	●	●
BYK-3565	Silicone and polyether macromer-modified polyacrylate	■					> 97			■		■			■					0.1–2.0	–	–
BYK-3566	Silicone and polyether macromer-modified polyacrylate	■					> 97			■		■			■					0.1–2.0	–	–
BYK-3760	Polyether-modified polydimethylsiloxane	■					100	■			■		■	■	■	■				0.02–0.5	●	●
BYK-UV 3500*7	Polyether-modified, acrylic-functional polydimethylsiloxane	■			■		100	■						■	■					0.2–1.0	●	●
BYK-UV 3505	Solution of a multi-acrylic-functional, modified polydimethylsiloxane	■			■	TPGDA	40	■						■	■			■		0.3–1.0	○	○
BYK-UV 3510*7/ BYK-UV 3511	Polyether-modified polydimethylsiloxane	■					100	■					■	■		■				0.05–1.0	●	●
BYK-UV 3530	Polyether-modified, acrylic-functional siloxane	■			■		100			■					■					0.2–1.0	○	○
BYK-UV 3535	Modified, silicone-free polyether		■	■	■		100			■		■			■		■			0.3–1.5	●	●
BYK-UV 3575	Solution of a multi-acrylic-functional, modified polydimethylsiloxane	■			■	TPGDA	40		■					■	■		■	■		0.3–1.0	●	●
NANOBYK-3605*8	Dispersion of surface-treated silica nanoparticles		■		■	HDDA	50*9												■	1.0–10.0	○	○

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

*7 Content of cyclic siloxanes ≥ 0.1 %. *8 Particle size D50: 20 nm *9 Nanoparticle content (%)

Surface additives for aqueous inkjet inks

Product	Description	Chemistry				Product data		Effect												Dosage	Regulatory	
								Surface tension reduction														
		Silicone	Silicone-free	OH-functional	Acrylic-functional	Solvent/reactive diluent	Active substance (%)	Strong	Medium	No/low	Dynamic	Increase of surface energy	Substrate wetting	Surface slip	Flow/leveling	Anti-crater	Good recoatability	Gloss	Scratch resistance	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYK-333	Polyether-modified polydimethylsiloxane	■					> 97		■					■	■					0.1–0.5	●	●
BYK-345	Polyether-modified siloxane	■					100	■					■		■		■			0.05–0.5	●	●
BYK-347	Polyether-modified siloxane	■					100	■					■		■		■			0.1–1.0	●	●
BYK-348	Polyether-modified siloxane	■					100	■					■		■		■			0.05–0.5	●	●
BYK-349	Polyether-modified siloxane	■					100	■					■		■		■			0.05–0.5	●	●
BYK-378*[10]/BYK-3764	Polyether-modified polydimethylsiloxane	■					100		■					■	■					0.1–0.5	●	●
BYK-381	Solution of a polyacrylate, ionic		■			DPM	52			■					■		■			0.1–1.0	○	○
BYK-3400	Aqueous solution of a modified succinic acid and polyether-modified siloxane	■				Water	70	■			■		■		■		■			0.5–2.0	●	●
BYK-3410	Mixture of a modified succinic acid and esters		■				100		■		■		■		■		■			0.5–2.0	●	●
BYK-3420	Polyether-modified polydimethylsiloxane	■					100	■					■		■		■			0.1–1.5	●	●
BYK-3450	Polyether-modified siloxane	■					100	■					■		■		■			0.1–1.0	●	●
BYK-3451	Polyether-modified siloxane	■					100	■					■		■		■			0.1–1.0	●	●
BYK-3455	Polyether-modified polydimethylsiloxane	■					> 90	■					■		■		■			0.1–1.0	○	○
BYK-3456	Polyether-modified polydimethylsiloxane	■					> 90	■					■		■		■			0.1–1.0	●	●
BYK-3560	Polyether macromer-modified polyacrylate		■				100			■		■			■		■			0.1–2.0	●	●
BYK-3565	Silicone and polyether macromer-modified polyacrylate	■					> 97			■		■			■		■			0.1–2.0	–	–
BYK-3566	Silicone and polyether macromer-modified polyacrylate	■					> 97			■		■			■		■			0.1–2.0	–	–
BYK-3760	Polyether-modified polydimethylsiloxane	■					100		■					■	■					0.1–0.5	●	●
BYK-DYNWET 800	Alcohol alkoxylates		■				100		■		■		■		■		■			0.5–2.0	●	●
BYK-DYNWET 810	Alcohol alkoxylates		■				100		■		■		■		■		■			0.5–2.0	●	●
NANOBYK-3620*[11]	Surface-treated silica nanoparticle dispersion in water		■			Water	30*[12]												■	0.1–1.0	○	○

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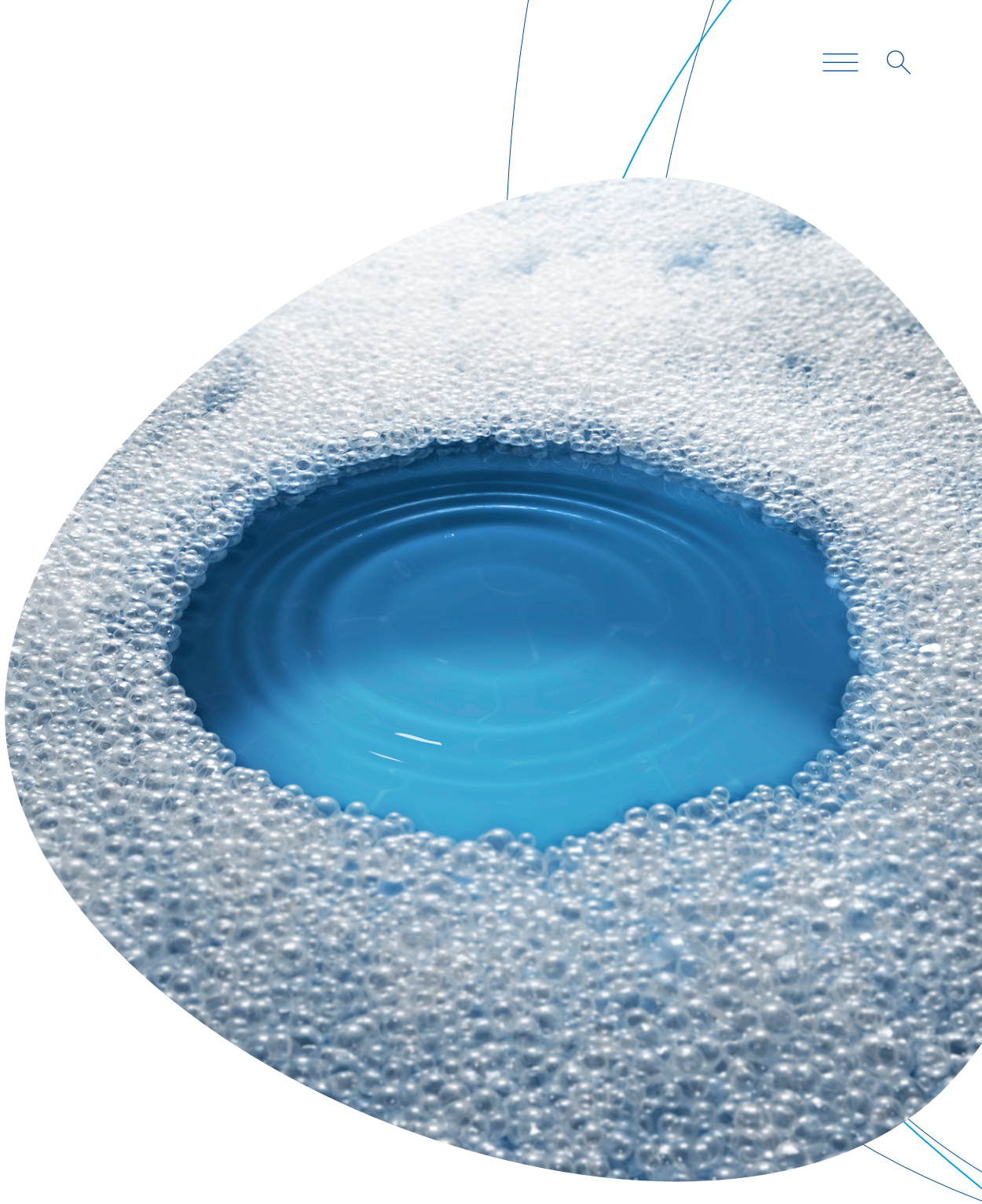
Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

*[10] Content of cyclic siloxanes ≥ 0.1 %. *[11] Particle size D50: < 100 nm *[12] Nanoparticle content (%)

Defoamers

The formation of foam is a common problem in aqueous systems as well as in solvent-borne and UV-curing systems when producing and applying inks. Emulsifiers that are used in aqueous binders, along with wetting and dispersing additives and surface additives, can cause foam formation. Foam can result in delays in the production and application process and has a negative impact on the appearance and mechanical properties of inks, making defoamers essential in the production of these systems. BYK is the market leader in defoamers (e.g., BYK) and air release additives (e.g., BYK-A) and offers products based on chemistries such as silicone, silicone-polymeric, polymeric, and mineral oils. BYK defoamers can be used in a range of shear forces (grind stage, let-down stage, blending). BYK offers defoamers for aqueous, solvent-borne, and UV-curing systems for all viscosities. A lot of these defoamers are compliant with various regulations for direct and indirect food contact applications.



Defoamers for solvent-borne inkjet inks

Product	Description	Chemistry			Product data	Incorporation			Dosage	Regulatory	
		Silicone	Silicone-free, polymer-based	Hydrophobic particles	Solvent/reactive diluent	Pigment grind/mill base	Let-down	Post addition	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYK-1799	Blend of hydrophobic solids and foam-destroying polysiloxanes	■		■		■			0.2–1.0	●	●

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

Defoamers for UV inkjet inks (solvent-free)

Product	Description	Chemistry			Product data	Incorporation			Dosage	Regulatory	
		Silicone	Silicone-free, polymer-based	Hydrophobic particles	Solvent/reactive diluent	Pigment grind/mill base	Let-down	Post addition	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYK-1790	Polyolefin		■			■			0.1–0.7	●	●
BYK-1791	Solution of polyolefin		■		Isoparaffin	■			0.1–1.5	●	●
BYK-1794	Polyolefin copolymer		■			■	■		0.1–1.0	●	●
BYK-A 535	Solution of foam-destroying polymers, silicone-free		■			■			0.1–1.0	○	○

● Refer to food contact sheet ○ Not evaluated – No

For detailed information on food regulatory status, please visit www.byk.com/en/service/regulatory-affairs/food-contact or contact our BRIEF team.

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

Defoamers for aqueous inkjet inks

Product	Description	Chemistry			Product data	Incorporation			Dosage	Regulatory	
		Silicone	Silicone-free, polymer-based	Hydrophobic particles	Solvent/reactive diluent	Pigment grind/mill base	Let-down	Post addition	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
BYK-019*[13]/BYK-1709	Solution of a polyether-modified polydimethylsiloxane	■			DPM	■			0.1–1.0	●	●
BYK-025	Solution of foam-destroying polysiloxanes	■			DPM		■	■	0.1–1.5	–	–
BYK-028	Compound of modified polysiloxanes, polyether and hydrophobic particles	■		■			■	■	0.1–1.0	●	●
BYK-1679	Non-ionic, aqueous silicone emulsion	■					■	■	0.1–0.8	–	–
BYK-1770	Polyether-modified polydimethylsiloxane	■				■	■		0.3–1.0	○	○

● Refer to food contact sheet ○ Not evaluated – No

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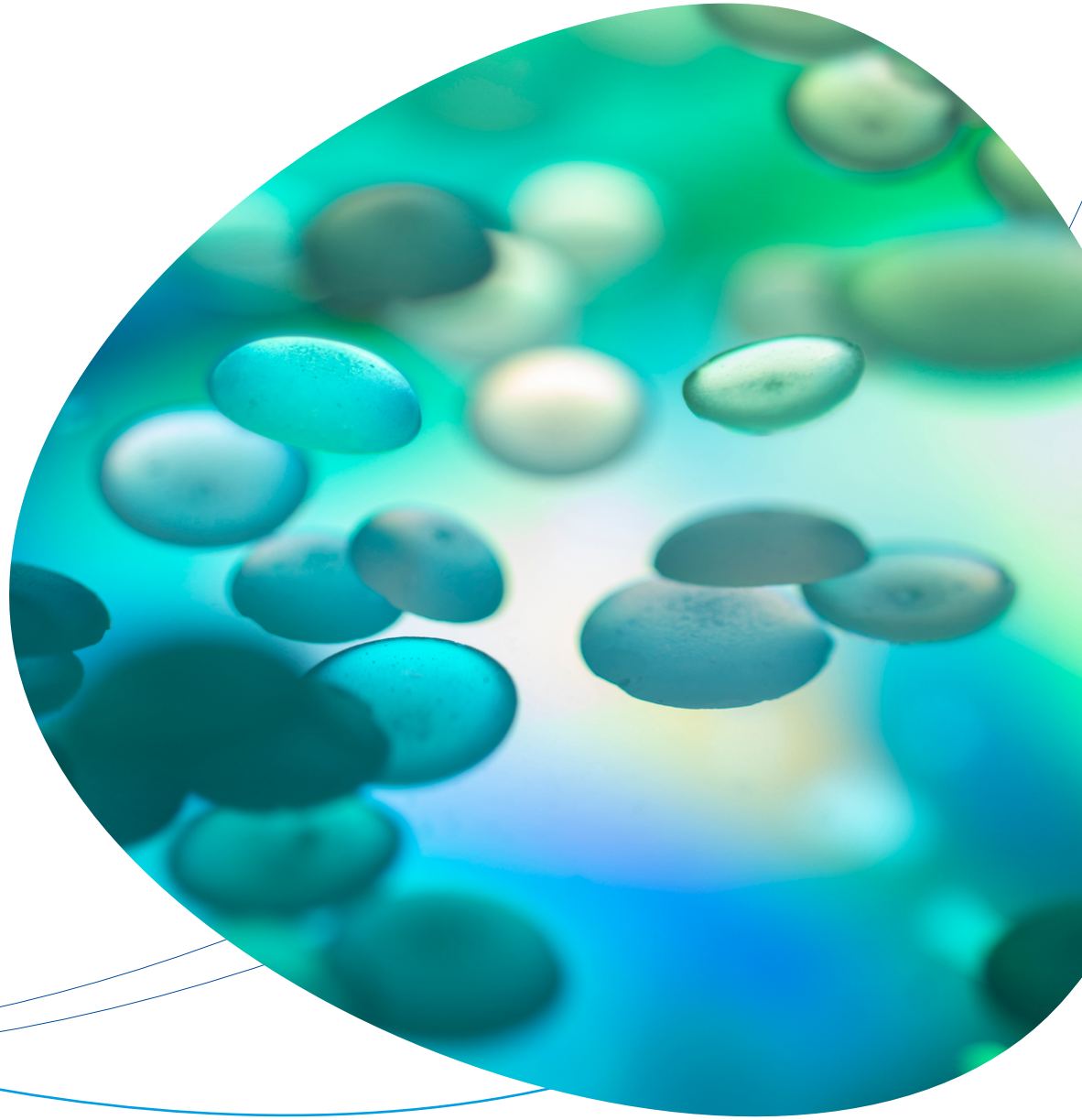
Unless otherwise stated, all silicone-containing additives have a cyclic siloxane content (D4, D5, D6) of less than 0.1 % each.

*[13] Content of cyclic siloxanes ≥ 0.1 %.

Wax additives

Wax additives, often referred to as surface modifiers, have a significant impact on many ink formulations, printing processes, and end applications. BYK's wax additives are based on chemistries that provide essential property benefits for inks, such as slip and lubricity, abrasion resistance, anti-blocking, gloss or matting, water repellency, and tactile finish. With a high number of product lines, BYK offers a wax additive for every ink system, including aqueous systems. BYK's ISO-certified plants develop these wax additives to meet customers' high performance and quality demands and deliver them in liquid form, such as emulsions. These wax additives can be used in digital printing processes as they meet or exceed ever-changing regulatory requirements.



Wax additives for aqueous inkjet inks

Product	Wax base	Emulsifier system		Product data			Effect								Dosage	Regulatory	
		Anionic	Non-ionic	Carrier	Active substance (%)	Melting point (°C)	Mechanical resistance	Surface slip	Anti-slip	Anti-blocking, water repellency	Anti-settling	Soft-feel effect	Gloss reduction	Orientation effect pigments	As supplied (%)	Swiss Ordinance 817.023.21, Annex 10	Nestlé Guidance Note on Packaging Inks (Oct. 2018)
AQUACER 513	Oxidized HDPE wax		■	Water	35	135	■								3.0–14.0	●	●
AQUACER 530	Oxidized HDPE wax		■	Water	32	130	■	■							2.0–11.0	●	●
AQUACER 531	Modified HDPE wax		■	Water	45	130	■			■					2.0–5.0	●	●
AQUACER 539	Modified paraffin wax		■	Water	35	90		■		■					1.0–3.0	○	○
AQUACER 593	Modified PP wax		■	Water	30	160			■						3.0–4.0	●	●

● Refer to food contact sheet ○ Not evaluated – No

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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.

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