



Product Guide L-G 5

# Additives for Radiation Curing Systems

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Radiation curing systems (UV and EB curing) have found wide usage in several industrial sectors where high-quality surface coatings are of interest. The main areas of application are wood and furniture coatings, industrial coatings, can coatings, printing inks (including overprint varnishes), inkjet inks, and powder coatings. This brochure summarizes our additive recommendations for these applications.

Solvent-free additives are naturally preferred for solvent-free formulations; however, solvent-borne additives may also be used (except in powder coatings), as long as they contribute only small amounts of solvent to the final formulation.

Several products were specifically developed for radiation curing formulations: these are acrylated additives that can participate in crosslinking reactions. These products are marked with an asterisk (\*) in the following tables.

Details about all the additives mentioned can be found in the corresponding Technical Data Sheets that are also available at our website [www.byk.com/additives](http://www.byk.com/additives).



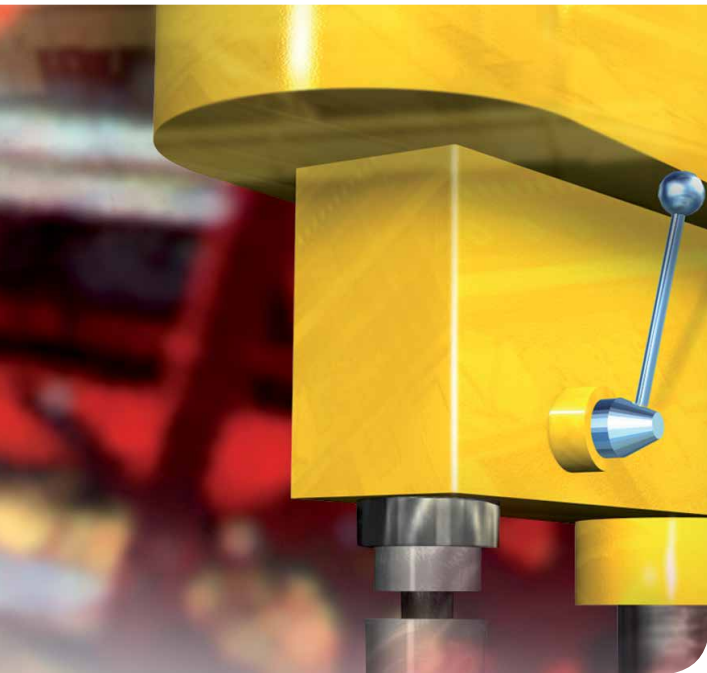
## Industrial Coatings

	Solvent-free systems	Aqueous systems
Pigment wetting and stabilization	<b>DISPERBYK-111</b> <b>DISPERBYK-168</b> <b>DISPERBYK-180</b> <b>DISPERBYK-2055</b> DISPERBYK-2008 DISPERBYK-2155	<b>DISPERBYK-180</b> <b>DISPERBYK-2010</b> <b>DISPERBYK-2055</b> DISPERBYK-2015
Silicone-based defoamers		<b>BYK-019</b> <b>BYK-093</b>
Silicone-free defoamers	<b>BYK-1791</b>	<b>BYK-011</b> <b>BYK-1711</b>
Substrate wetting	<b>BYK-333</b> <b>BYK-378</b> <b>BYK-UV 3505*</b>	<b>BYK-349</b> <b>BYK-3455</b>
Surface slip		<b>BYK-333</b> <b>BYK-378</b>
Scratch resistance	<b>NANOBYK-3605</b> CERAFLOUR 950 CERAFLOUR 988	<b>NANOBYK-3600</b>
Leveling	<b>BYK-399</b> <b>BYK-3455</b> <b>BYK-UV 3535*</b> BYK-361 N	<b>BYK-3455</b> BYKETOL-AQ
Matting	<b>CERAFLOUR 1000</b>	<b>AQUAMAT 272</b> <b>CERAFLOUR 925</b> <b>CERAFLOUR 929</b> CERAFLOUR 920
Anti-settling / anti-sagging	<b>BYK-7410 ET</b> <b>BYK-D 410</b>	<b>BYK-7420 ES</b> BYK-D 420 OPTIGEL-WX

Our especially recommended additives are printed in bold.

figure 1

\* = acrylated (reactive) additives



## Wood and Furniture Coatings

	Solvent-free systems	Aqueous systems
Pigment wetting and stabilization	<b>DISPERBYK-2055</b> <b>DISPERBYK-2155</b> DISPERBYK-111	<b>DISPERBYK-2015</b> <b>DISPERBYK-2055</b> DISPERBYK-190
Wetting and stabilization of silica matting agents	<b>DISPERBYK-2008</b>	<b>DISPERBYK-2015</b>
Anti-settling	<b>BYK-7410 ET</b> <b>GARAMITE-1958</b> <b>GARAMITE-7303</b>	<b>BYK-7420 ES</b> <b>LAPONITE-S 482</b> AQUATIX 8421 OPTIFLO-H 370 VF
Silicone-based defoamers	<b>BYK-1798</b> BYK-088 BYK-A 530	<b>BYK-093</b> <b>BYK-094</b> BYK-024 BYK-028
Silicone-free defoamers	<b>BYK-055</b> <b>BYK-1790</b> BYK-1791	<b>BYK-012</b> BYK-1711
Leveling	<b>BYK-UV 3575*</b> <b>BYK-UV 3576*</b> BYK-361 N	<b>BYK-378</b> <b>BYK-3455</b>
Surface slip	<b>BYK-UV 3505*</b> <b>BYK-UV 3575*</b> BYK-378 BYK-UV 3500* CERAFLOUR 988	<b>BYK-333</b> <b>BYK-UV 3500*</b> AQUACER 539
Tape release	<b>BYK-UV 3500*</b> <b>BYK-UV 3505*</b>	<b>BYK-377</b> <b>BYK-UV 3500*</b>
Scratch resistance	<b>CERAFLOUR 929</b> <b>CERAFLOUR 988</b> NANOBYK-3605	<b>CERAFLOUR 929</b> <b>NANOBYK-3603</b> NANOBYK-3620
Substrate wetting	<b>BYK-UV 3505*</b> BYK-UV 3500* BYK-UV 3575*	<b>BYK-3455</b> BYK-349 BYK-UV 3500*
Matting	<b>CERAFLOUR 920</b> <b>CERAFLOUR 929</b> <b>CERAFLOUR 1000</b> CERAFLOUR 950	<b>AQUAMAT 272</b> <b>CERAFLOUR 920</b> <b>CERAFLOUR 929</b> CERAFLOUR 1000

Our especially recommended additives are printed in bold.

figure 2

\* = acrylated (reactive) additives





## Can Coatings

	Solvent-free systems	Aqueous systems
<b>Pigment wetting and stabilization</b>	<b>DISPERBYK-111</b> <b>DISPERBYK-192</b> <b>DISPERBYK-2013</b>	<b>DISPERBYK-180</b> <b>DISPERBYK-192</b> DISPERBYK-190
<b>Silicone-based defoamers</b>	<b>BYK-1798</b> BYK-081 BYK-088	<b>BYK-093</b> BYK-019 BYK-022
<b>Silicone-free defoamers</b>	<b>BYK-1790</b> BYK-1794	<b>BYK-016</b> BYK-014
<b>Substrate wetting</b>	<b>BYK-349</b> <b>BYK-3550</b> BYK-307 BYK-333	<b>BYK-349</b> <b>BYK-3410</b> BYK-333
<b>Scratch resistance</b>	<b>CERAFLOUR 925</b> CERAFLOUR 981 CERAFLOUR 991	<b>AQUACER 1547</b> <b>CERAFLOUR 925</b>
<b>Leveling</b>	<b>BYK-350</b> <b>BYK-399</b> BYK-359	<b>BYK-302</b> <b>BYK-381</b>
<b>Surface slip</b>	<b>BYK-307</b> <b>BYK-333</b> BYK-UV 3500*	<b>BYK-333</b> BYK-307
<b>Matting</b>	<b>CERAFLOUR 920</b> <b>CERAFLOUR 950</b>	<b>CERAFLOUR 920</b> <b>CERAFLOUR 929</b>

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figure 3

\* = acrylated (reactive) additives



## Powder Coatings

	Pigmented coatings	Clear coatings
<b>Leveling</b>	<b>BYK-368 P</b>	<b>BYK-361 N</b>
<b>Matting</b>	<b>CERAFLOUR 920</b> <b>CERAFLOUR 950</b>	<b>CERAFLOUR 970</b> <b>CERAFLOUR 991</b>
<b>Scratch resistance</b>	<b>CERAFLOUR 920</b> <b>CERAFLOUR 950</b>	<b>CERAFLOUR 920</b> CERAFLOUR 950
<b>Texture</b>	<b>CERAFLOUR 965</b> <b>CERAFLOUR 968</b> <b>CERAFLOUR 969</b>	
<b>Scar effect</b>	<b>CERAFLOUR 960</b> <b>CERAFLOUR 994</b>	
<b>Process optimization</b> (Pigment wetting, extrusion, out-gassing, gloss, haze, leveling)	<b>BYK-3950 P</b> <b>BYK-3951 P</b> <b>BYK-3955 P</b>	

Our especially recommended additives are printed in bold.

figure 4

## Printing Inks and Overprint Varnishes

	Packaging gravure and flexographic inks UV 100 %	Overprint varnishes	
		UV aqueous	UV 100 %
Pigment wetting and stabilization	<b>DISPERBYK-111</b> <b>DISPERBYK-168</b> <b>DISPERBYK-2013</b> DISPERBYK-2009 DISPERBYK-2155		
Silicone-based defoamers	<b>BYK-067 A</b> <b>BYK-088</b> BYK-1798	<b>BYK-019</b> BYK-094	<b>BYK-019</b> <b>BYK-1798</b> BYK-067 A BYK-088
Silicone-free defoamers	<b>BYK-1752</b> <b>BYK-1790</b> <b>BYK-1791</b> BYK-1794		<b>BYK-1752</b> <b>BYK-1790</b> <b>BYK-1794</b> BYK-057
Substrate wetting	<b>BYK-377</b> <b>BYK-3455</b> <b>BYK-UV 3500*</b> <b>BYK-UV 3510</b> BYK-333 BYK-UV 3505*	<b>BYK-3410</b> <b>BYK-3455</b> <b>BYK-DYNWET 800</b>	<b>BYK-377</b> <b>BYK-UV 3500*</b> BYK-381 BYK-UV 3505*
Surface slip	<b>BYK-307</b> <b>BYK-377</b> <b>CERAFLOUR 950</b> BYK-UV 3505* CERAFLOUR 991	<b>AQUACER 539</b> <b>BYK-307</b> <b>BYK-333</b> AQUACER 552	<b>BYK-377</b> <b>BYK-UV 3505*</b> <b>CERAFLOUR 950</b> BYK-307 CERAFLOUR 991
Abrasion resistance	<b>BYK-377</b> <b>BYK-UV 3510</b> <b>CERAFLOUR 950</b> CERAFLOUR 991	<b>AQUACER 532</b> <b>BYK-333</b> <b>BYK-UV 3500*</b> AQUACER 552	<b>BYK-377</b> <b>BYK-UV 3510</b> <b>CERAFLOUR 950</b> CERAFLOUR 991
Leveling	<b>BYK-354</b> <b>BYK-381</b> <b>BYK-3455</b> BYK-307 BYK-333 BYK-345 BYK-361 N	<b>BYK-345</b> <b>BYK-381</b>	<b>BYK-354</b> <b>BYK-377</b> <b>BYK-381</b> <b>BYK-3455</b> BYK-345 BYK-UV 3505*
Matting	<b>CERAFLOUR 1000</b>	<b>AQUAMAT 263</b> <b>CERAFLOUR 1000</b> AQUAMAT 272	<b>CERAFLOUR 1000</b>
Water repellency		<b>AQUACER 497</b> AQUACER 533 AQUACER 539	
Anti-slip		<b>AQUACER 593</b> AQUACER 527	
Rheology control		<b>BYK-425</b> <b>BYK-7420 ES</b>	<b>BYK-7410 ET</b>

Our especially recommended additives are printed in bold.

figure 5

\* = acrylated (reactive) additives





## Inkjet Inks

	Solvent-free systems
Pigment wetting and stabilization	<p><b>Cyan: (PB 15:3/PB 15:4)</b>  <b>BYKJET-9151</b>            BYKJET-9150            BYKJET-9152</p> <p><b>Magenta: (PV 19/PR 122)</b>  <b>BYKJET-9152</b>            BYKJET-9150            BYKJET-9151</p> <p><b>Yellow: (PY 139/PY 151/PY 155)</b>  <b>BYKJET-9152</b>            BYKJET-9150            BYKJET-9151</p> <p><b>Yellow: (PY 150)</b>  <b>DISPERBYK-168</b></p> <p><b>Black: (PBk 7)</b>  <b>BYKJET-9151</b>  <b>DISPERBYK-168</b>            BYKJET-9150            BYKJET-9152</p> <p><b>White: (PW 6)</b>  <b>DISPERBYK-111</b>            BYKJET-9150            DISPERBYK-180</p>
Leveling	<p><b>BYK-361 N</b>            BYK-3441            BYK-3455            BYK-UV 3530*</p>
Substrate wetting	<p><b>BYK-UV 3530*</b>  <b>BYK-UV 3575*</b>            BYK-UV 3500*            BYK-UV 3505*</p>
Surface slip	<p><b>BYK-378</b>  <b>BYK-UV 3575*</b>            BYK-UV 3500*            BYK-UV 3505*</p>
Defoaming	<p><b>BYK-1794</b>            BYK-1791            BYK-1798</p>

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figure 6

For more information about our additives and instruments, as well as our additive sample orders please visit:

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