BYK
Additives & Instruments

Product Guide L-G 20

Additives for “Greener” Coatings

Greenability

A member of ALTANA

Additive	Formaldehyde-free	APEO-free	VOC content (ppm)			Preservative * MIT/BIT (<0.1 %)	RoHS WEEE
			<1500	1500-5000	>5000-10000		
Surface Additives, Silicone-based							
BYK-307	■	■			■		■
BYK-333	■	■			■		■
BYK-348	■	■			■		■
BYK-349	■	■			■		■
BYK-3455	■	■			■		■
Surface Additives, Wax-based							
AQUACER 501	■	■		■		■	■
AQUACER 513	■	■	■			■	■
AQUACER 539	■	■		■		■	■
AQUAMAT 208	■	■	■			■	■
AQUAMAT 272	■	■		■		■	■
AQUATIX 8421	■	■	■			■	■
CERAFLOUR 1000	■	■	■				■
Rheology Additives							
BYK-425	■	■	■				■
OPTIFLO-H 3300 VF	■	■	■			■	■
OPTIFLO-L 1400	■	■	■			■	■
OPTIFLO-T 1000	■	■	■			■	■
Reduction of Drying-out/Caking of Aqueous Pigment Concentrates							
BYKETOL-PC	■	■	■			■	■

* unmarked products are preservative-free

Additive	Formaldehyde-free	APEO-free	VOC content (ppm)			Preservative * MIT/BIT (<0.1 %)	RoHS WEEE
			<1500	1500-5000	>5000-10000		
Wetting and Dispersing Additives							
ANTI-TERRA-250	■	■		■			■
BYK-154	■	■	■			■	■
DISPERBYK-102	■	■		■			■
DISPERBYK-185	■	■		■			■
DISPERBYK-190	■	■	■			■	■
DISPERBYK-191	■	■	■				■
DISPERBYK-192	■	■	■				■
DISPERBYK-199	■	■	■			■	■
DISPERBYK-2012	■	■		■		■	■
DISPERBYK-2015	■	■	■			■	■
DISPERBYK-2060	■	■		■			■
DISPERBYK-2061	■	■	■				■
DISPERBYK-2096	■	■	■				■
DISPERBYK-2152	■	■		■			■
Defoamer							
BYK-012	■	■	■				■
BYK-014	■	■	■				■
BYK-015	■	■		■			■
BYK-016	■	■	■				■
BYK-017	■	■		■			■
BYK-018	■	■	■				■
BYK-021	■	■	■				■
BYK-022	■	■	■				■
BYK-023	■	■	■			■	■
BYK-024	■	■	■				■
BYK-028	■	■	■				■
BYK-035	■	■	■				■
BYK-037	■	■	■			■	■
BYK-038	■	■	■				■
BYK-039	■	■	■				■
BYK-093	■	■	■				■
BYK-094	■	■	■				■
BYK-1610	■	■	■			■	■
BYK-1615	■	■	■			■	■
BYK-1640	■	■	■			■	■
BYK-1650	■	■		■		■	■
BYK-1710	■	■	■				■
BYK-1719	■	■	■				■
BYK-1730	■	■	■				■
BYK-1740	■	■	■				■
BYK-1780	■	■	■				■
BYK-1785	■	■	■			■	■
BYK-1794	■	■	■				■

* unmarked products are preservative-free

BYK Additives for “Greener” Coatings

The following table shows our portfolio of additives, selected for their ability to achieve “greener” coatings without sacrificing performance. The decisive criterion being the additive’s VOC content. Details of VOC measurement and other listed environmentally-relevant properties are explained in the following text:

Formaldehyde-free, APEO-free
A square mark in these columns indicates that the corresponding additive does not contain formaldehyde or alkylphenol ethoxylates (APEO) according to the recipe.

VOC content
VOC (= Volatile Organic Compounds) is measured with headspace gas chromatography by analyzing the gas composition in the space above the sample (= headspace) inside the chromatography vial after an equilibration time of 60 min at 100 °C. The table shows the total amount of all detected volatile organic components up to C16 in ppm. The impact on the VOC content of the coating can be easily calculated from these data.

Preservatives
Many aqueous additives require preservatives to avoid microbial attack. BYK uses MIT (= Methylisothiazolinone, CAS 2682-20-4) and BIT (= Benzisothiazolinone, CAS 2634-33-5), which have been widely used in the industry. Marked products contain MIT/BIT in a concentration below 0.1 %. Unmarked products are free from preservatives.

RoHS
RoHS is the acronym for **R**estriction **o**f the use of certain **H**azardous **S**ubstances. RoHS, also known as Directive 2011/65/EU, originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products. The substances banned under RoHS are lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

WEEE
WEEE is the acronym for **W**aste **E**lectrical and **E**lectronic **E**quipment. WEEE, also known as Directive 2012/19/EU, mandates the treatment, recovery and recycling of electric and electronic equipment. The substances banned under WEEE are polychlorinated biphenyls (PCB), polychlorinated terphenyls (PCT), chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC), hydrofluorocarbons (HFC), hydrocarbons (HC), asbestos, mercury and brominated flame retardants.

Looking for information on additives based on renewable raw materials?
We have detailed information for you at **www.byk.com/renewable.**

Would you like to talk to a specialist on this topic?
Our Green Experts will be glad to assist you further: **GreenExperts.BYK@altana.com.**

Looking for suitable additives for greener coating systems?
Please find our product recommendations at **www.byk.com/greenability.**

Greenability

There is no "green" standard, which is broadly accepted by the global industry. Within BYK, "Green" refers to all activities required to support our customers' goals of achieving any specific environmental standard. Therefore we created the word **Greenability** as a definition for our engagement in environmentally-friendly systems. Greenability is our ability to help our customers develop greener products.

For decades we have had additives for environmentally-friendly systems in our portfolio and today more than 50% of our research and development activities are focused on this topic. Our understanding of environmentally-friendly systems includes additives for powder coatings, water-borne systems, high solid and 100 % solid systems, VOC-free systems. We also constantly increase the amount of raw materials derived from renewable resources.

Our experience in the additive business contributes to our green expertise. Our broad portfolio offers a lot of options to create green solutions. And, our proven products have a long and trusted history of high performance. To summarize: We help our customers achieve their green goals by offering our expertise, product portfolio and exceptional quality.

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B-G 5

L-G 20

- **Greenability Overview B-1:**
  We help our customers achieve their "green" goals through our knowledge, service and range of products.
- **Product Guide B-G 5: Additives Based on Renewable Raw Materials**
  Summary of BYK additives with details regarding the percentage of renewable resources.
- **Product Guide L-G 20: Additives for "Greener" Coatings**
  Summary of BYK additives that can be used for the formulation of "greener" coating systems.

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

www.byk.com

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